

HOUSE 1

L A
M A C H I N E

[ALICE] y1

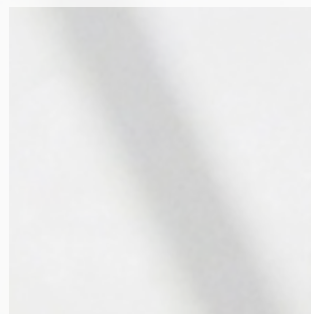
EPFL ÉCOLE D'ARCHITECTURE
PREMIÈRE ANNÉE 2015/2016



HACKER AUDE



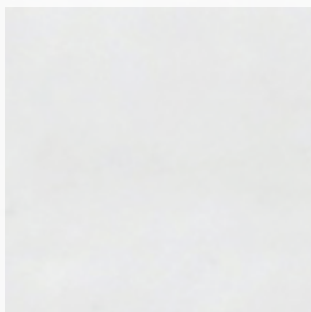
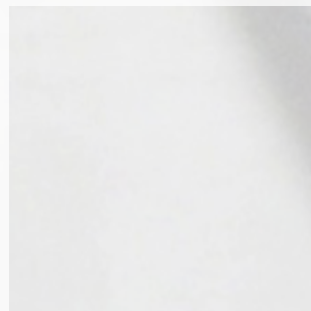
BURNIER MANDY



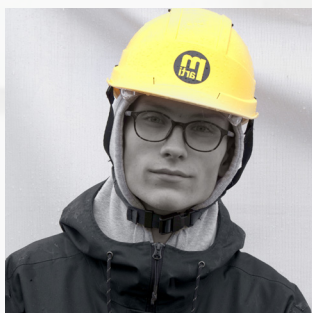
RUFER ANNE-CHANTAL



BEN AMOR AYOUB



NUSSBAUM JOANNE



DECURTINS FRANÇOIS



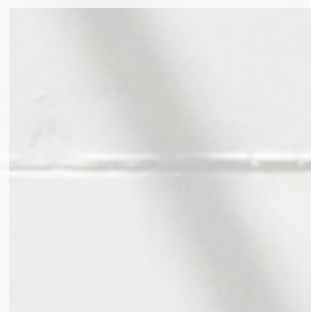
MEYLAN BENOÎT



LENDI SÉBASTIEN

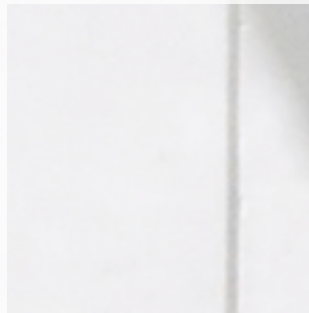


ULRICH SARAH

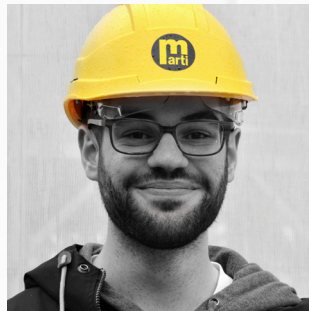




EMMENEGGER ALBA



GOLAY TÉO



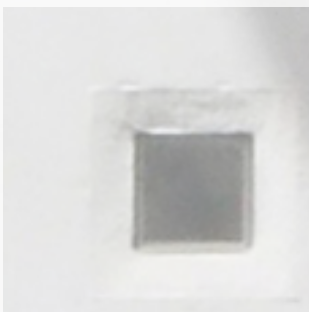
LUCAS MARCO



BALET LUCAS



DELIYSKI STÉPHANIE



SCHWAB LOÏC



RIAND ABIGAIL



WEBER SÉBASTIEN



ABDALLA GIOVANNI



WAHIDA ZIAD

- 
1. La machine
 2. Situation
 3. Dessins communs
 4. Projet
 5. Treillis
 6. Sol
 7. Parois mobiles
 8. Articulation
 9. Parois couloir
 10. Parois sud
 11. Plafond
 12. Tissu
 13. Mouvement
 14. Séquence montage
 15. Chantier

1.

L A M A C H I N E

C O N C E P T

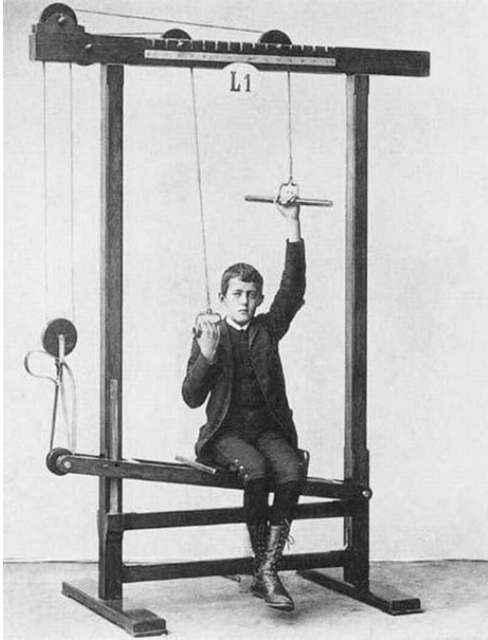
Le projet «la machine» naît d'une réflexion sur le mouvement et l'ouverture. Le défi était de trouver un mécanisme permettant de changer l'espace de la pièce par le mouvement ou le déplacement de ses propres éléments.

Le mécanisme du projet fonctionne comme une porte ou une fenêtre, il nécessite l'effort d'une personne pour l'enclencher. En poussant ou tirant sur une barre horizontale un pan de mur entier se détache entraînant avec lui le plafond. Ainsi la pièce s'ouvre simultanément au zénith et sur les côtés et de jour la lumière vient éclairer l'intérieur.

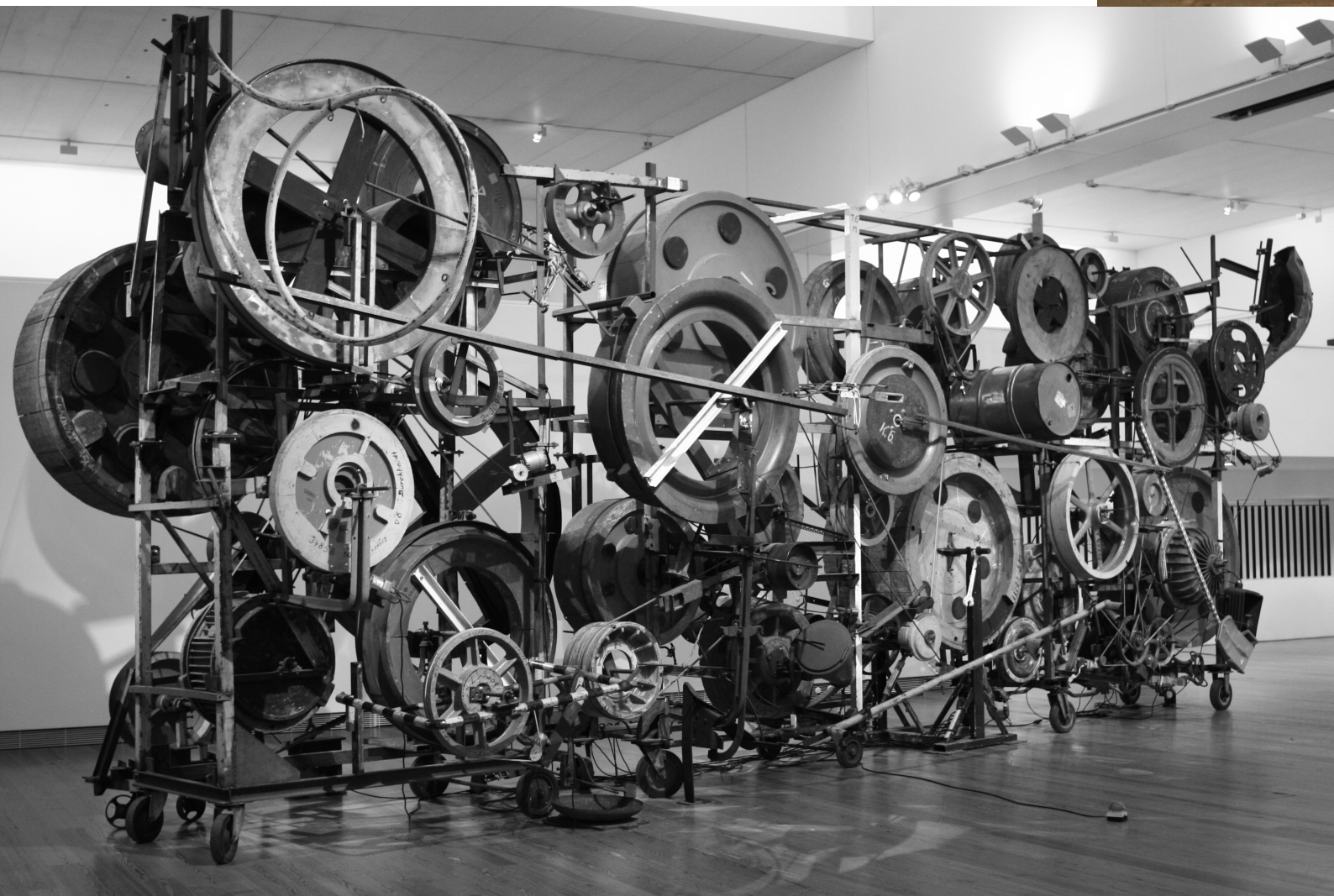
«La machine» a une position minimale et maximale. Elle se referme sur elle-même pour l'une et s'étend vers l'extérieur pour l'autre. La taille de la pièce ne change pas mais la sensation spatiale est complètement différente. Le projet expire, s'ouvre, s'illumine, explose, se décompose. Inspire, se referme, s'obscurcit, se rétracte.







INSPIRATION

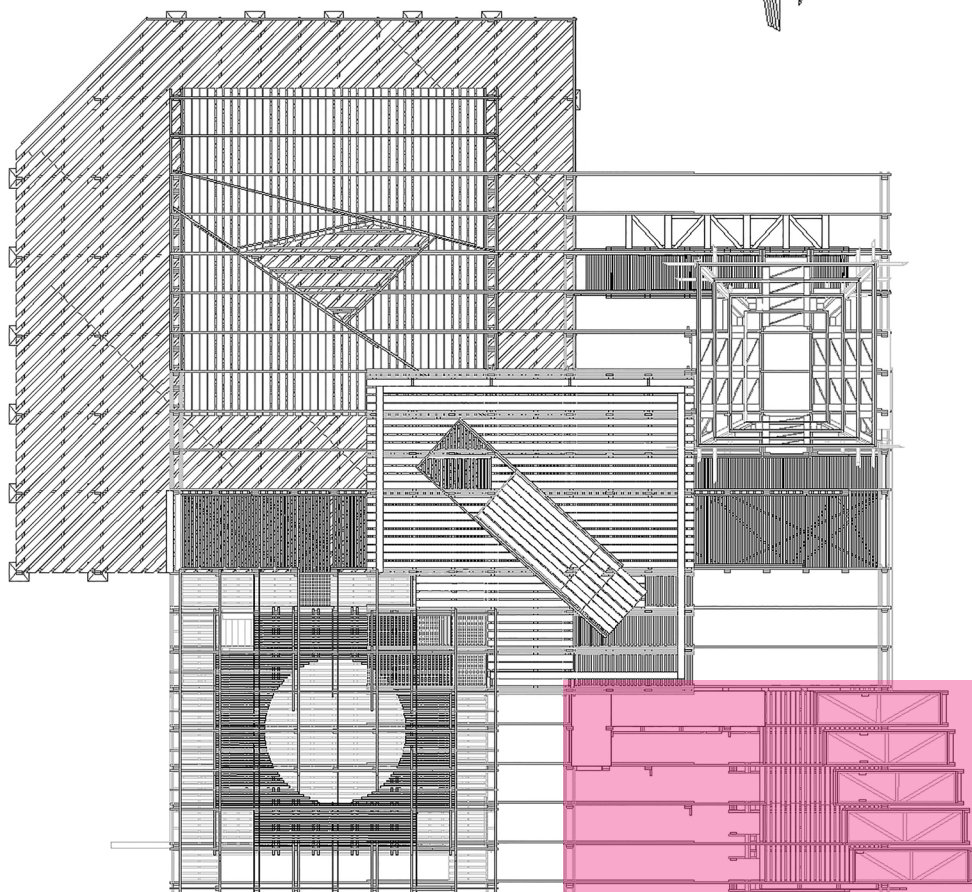
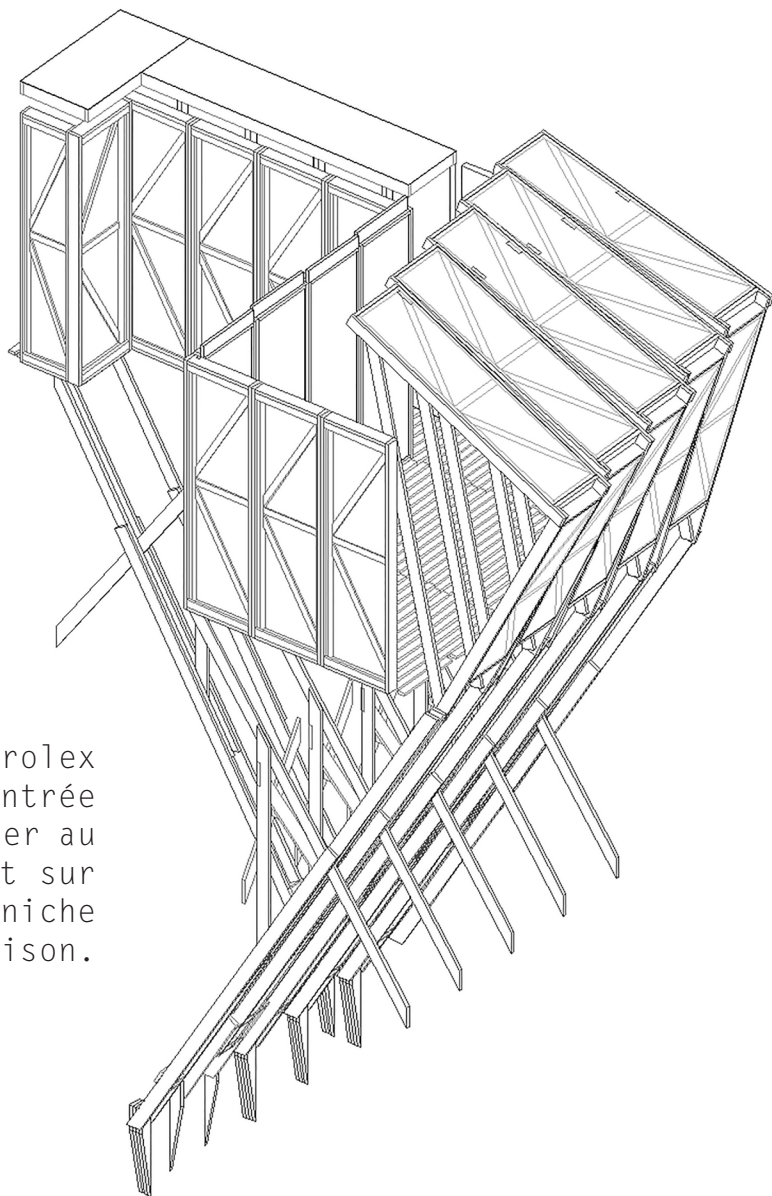




2.

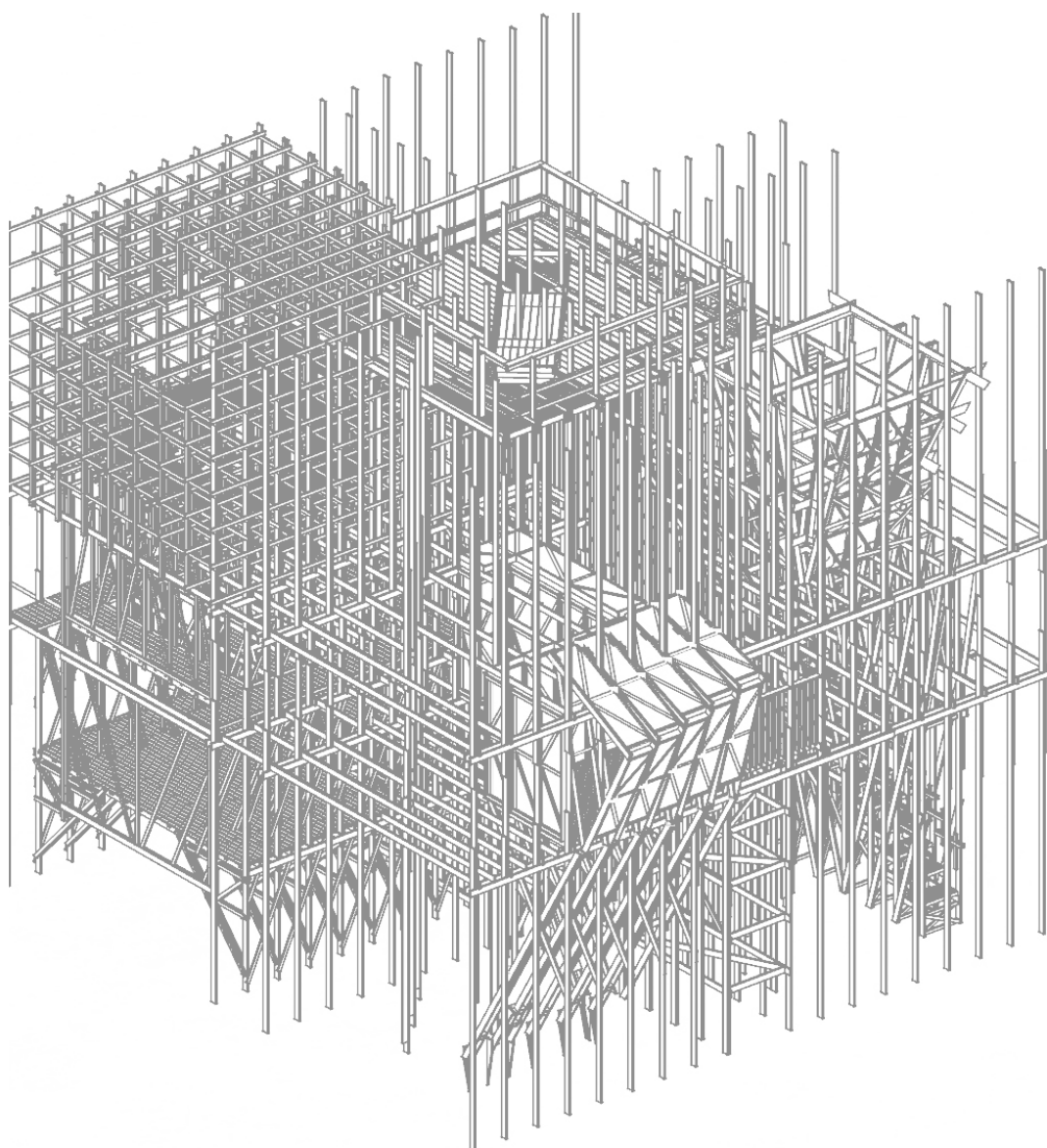
S I T U A T I O N

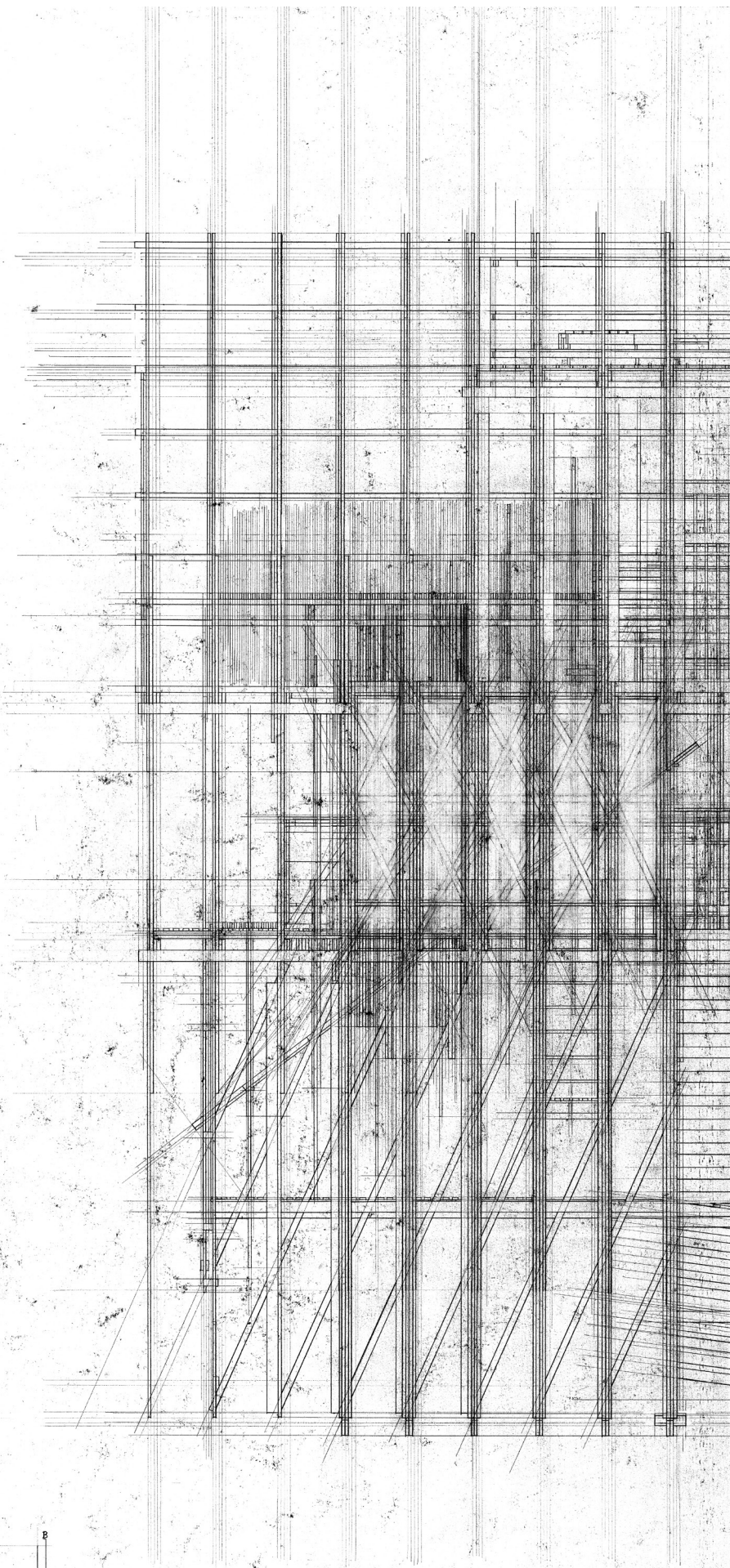
House one se situe à l'est du rolex learning center. En empruntant l'entrée principale, on découvre un escalier au coeur de la protostructure menant sur différents projets. «Respire» se niche au second étage, au sud-est de la maison.



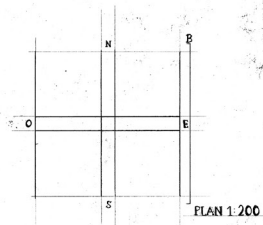
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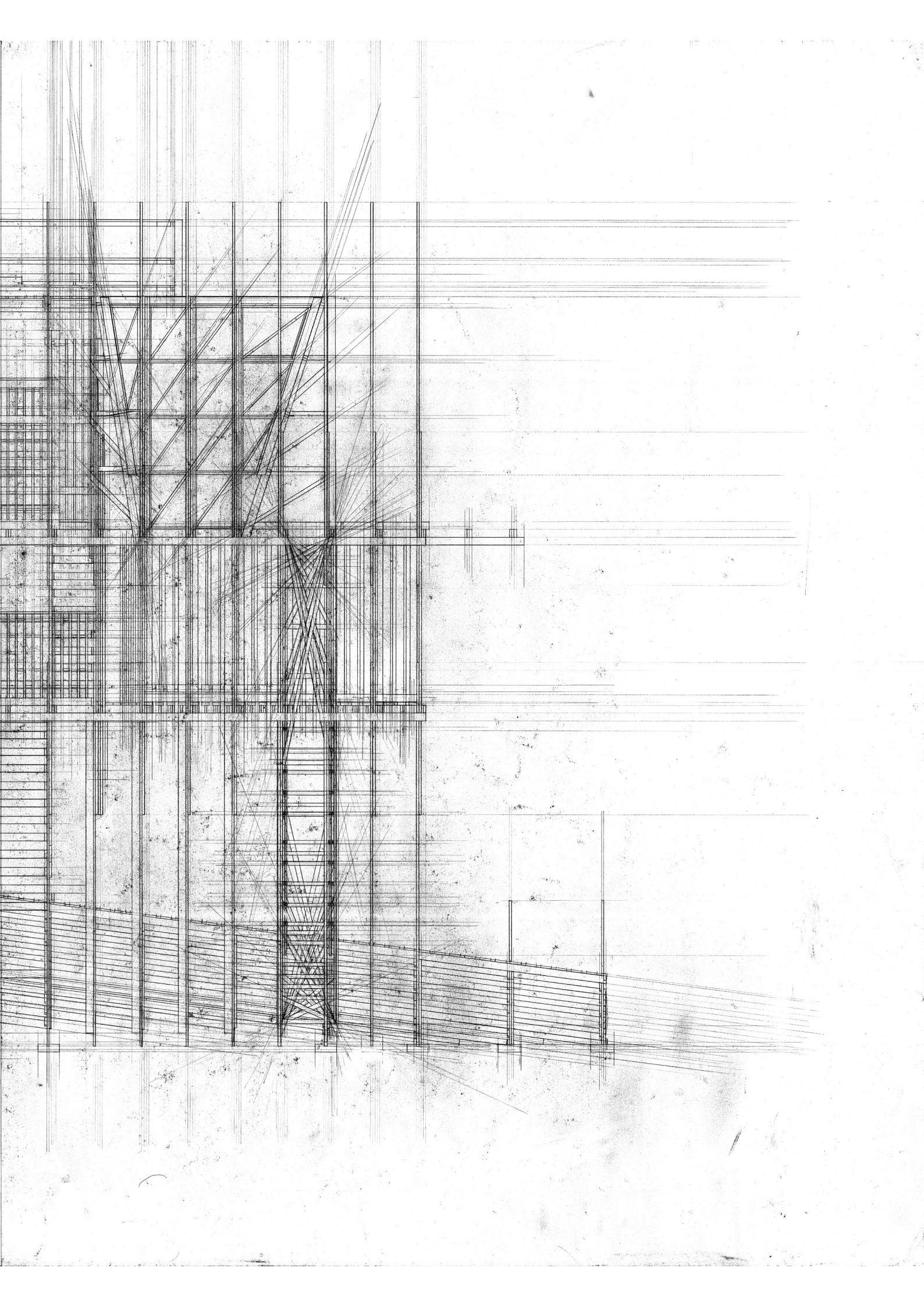
D E S S I N S C O M M U N S

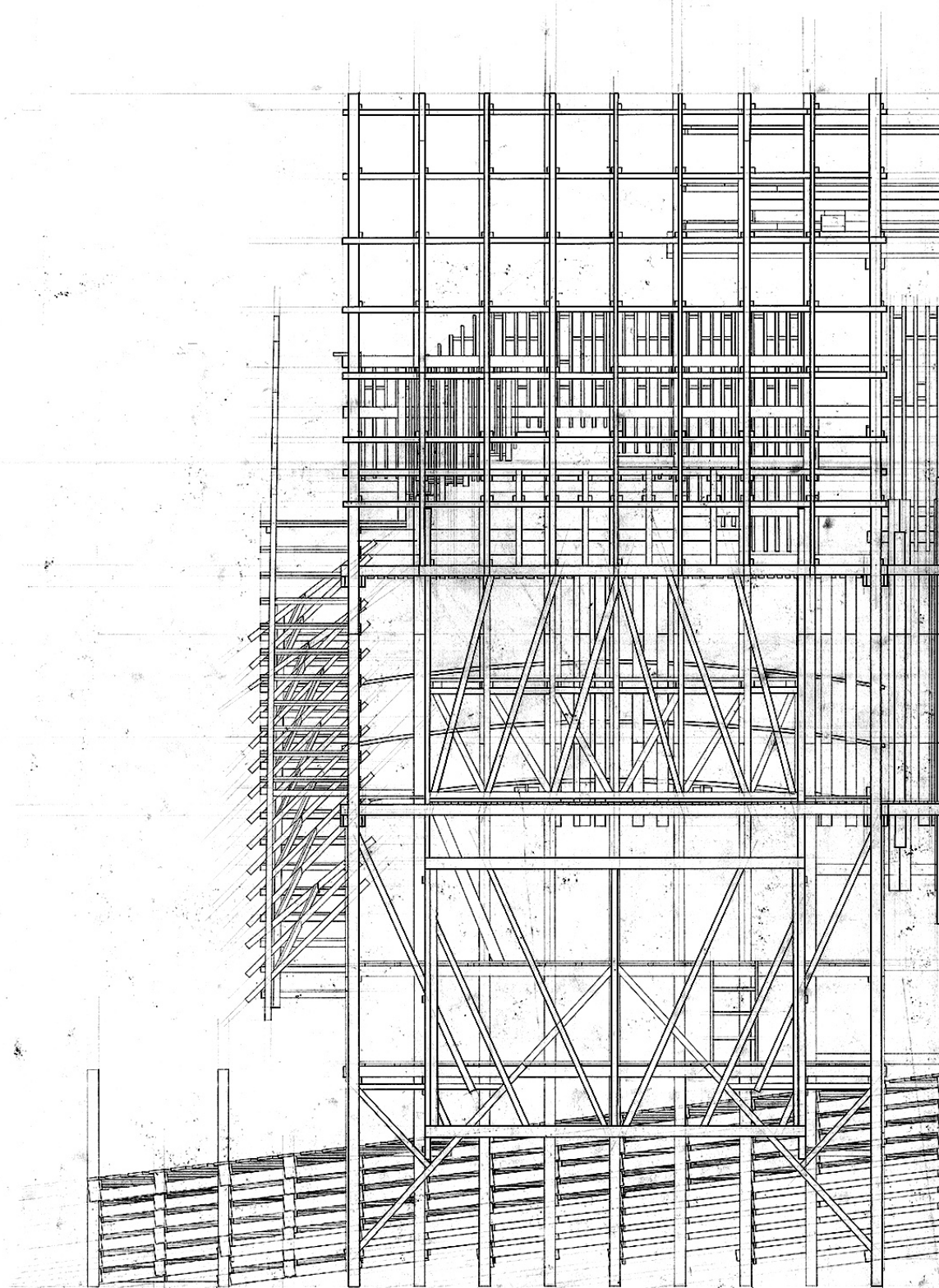




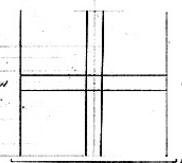
RUFER
ELEVATION B 1:20
LA MACHINE

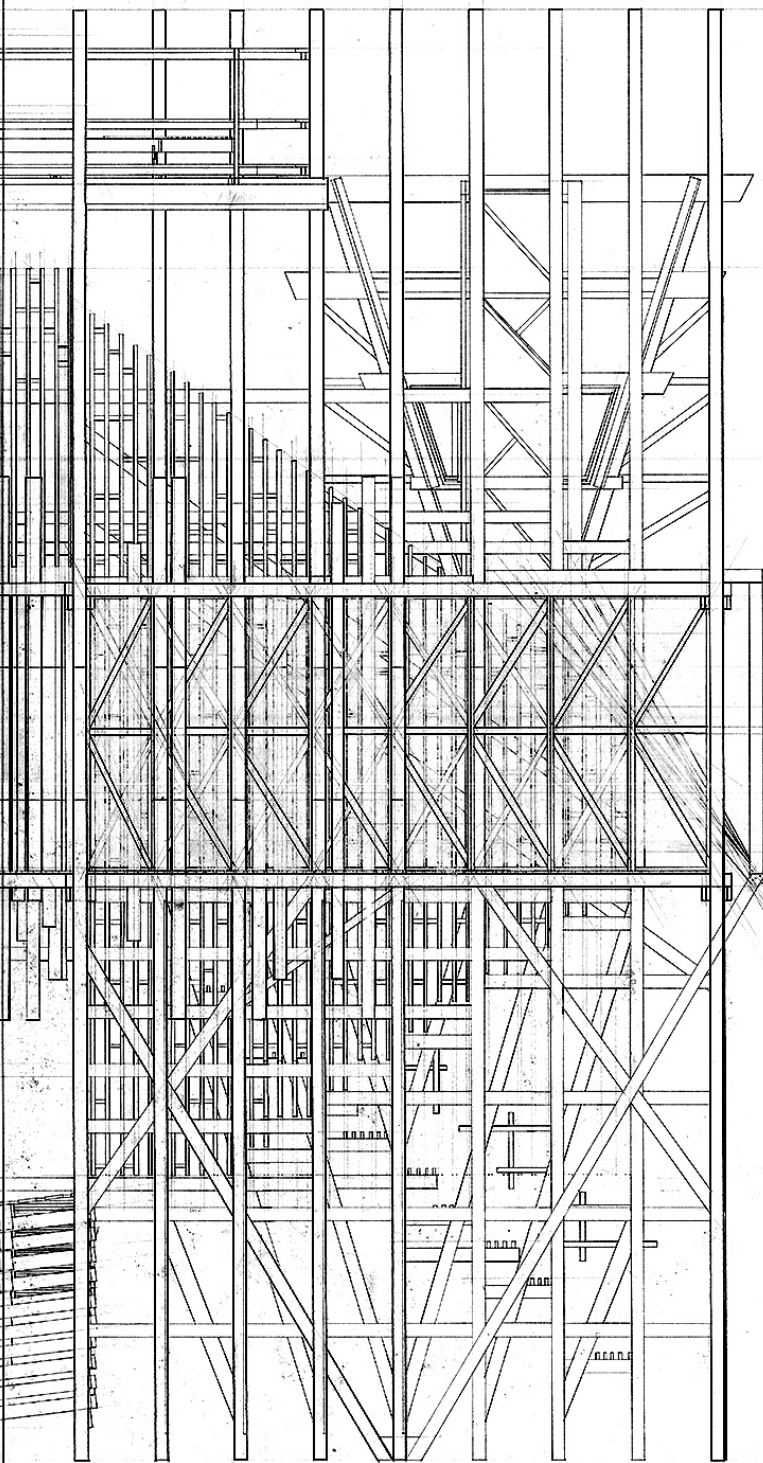


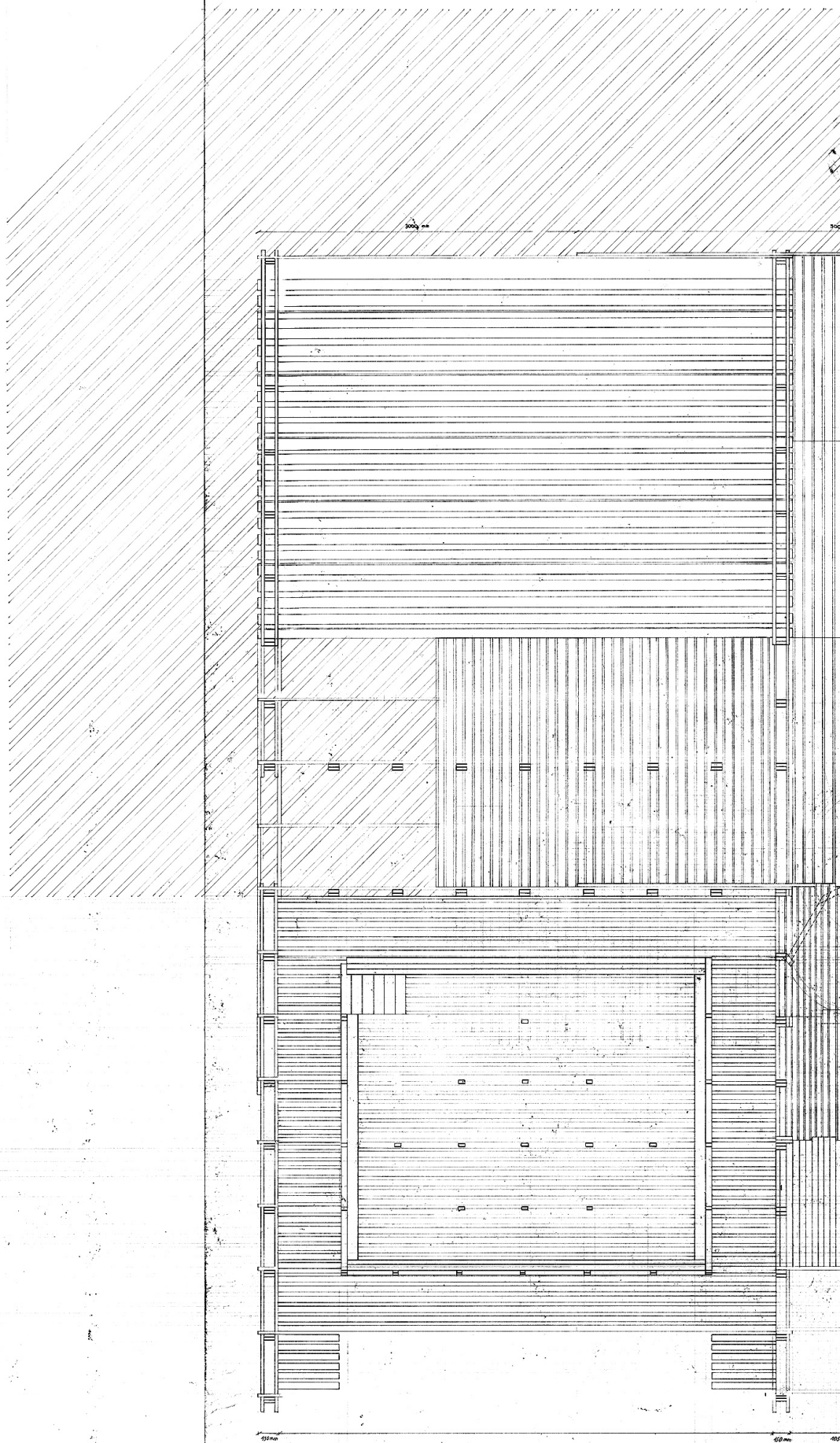


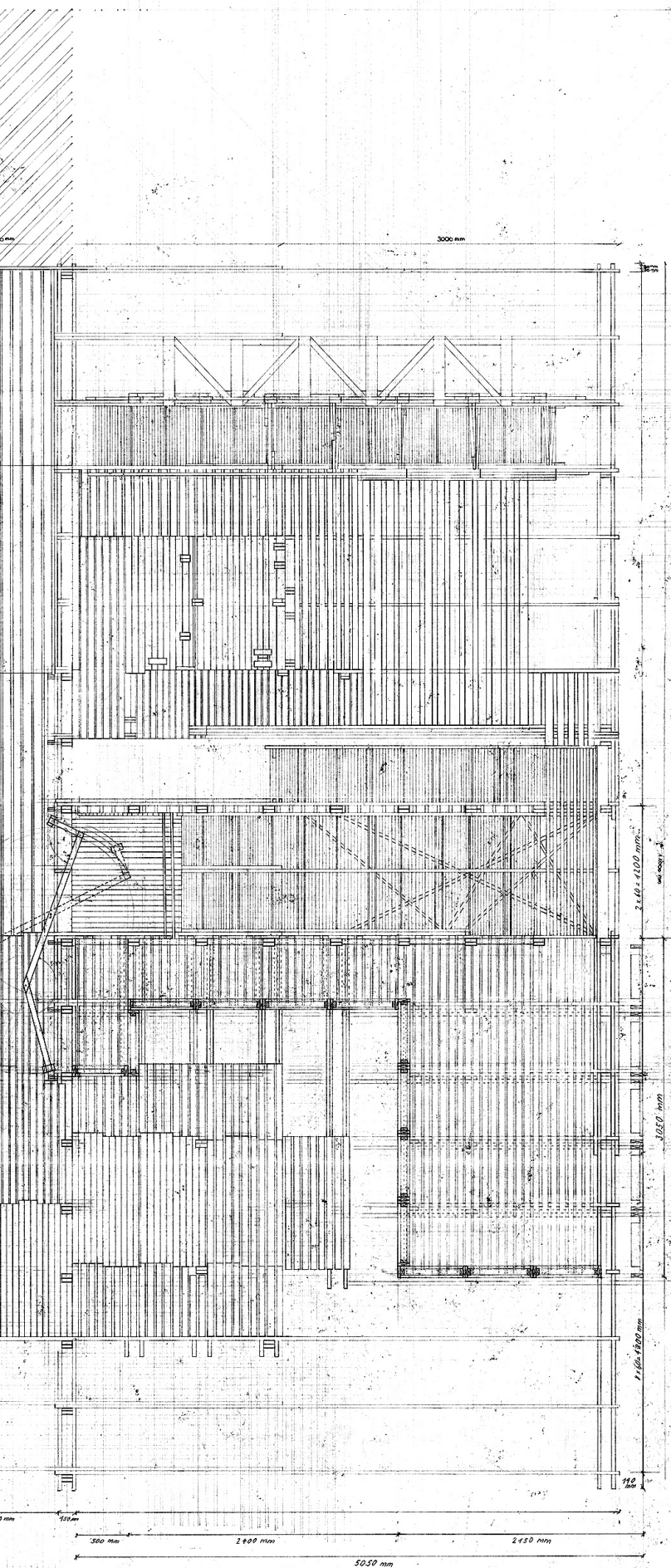


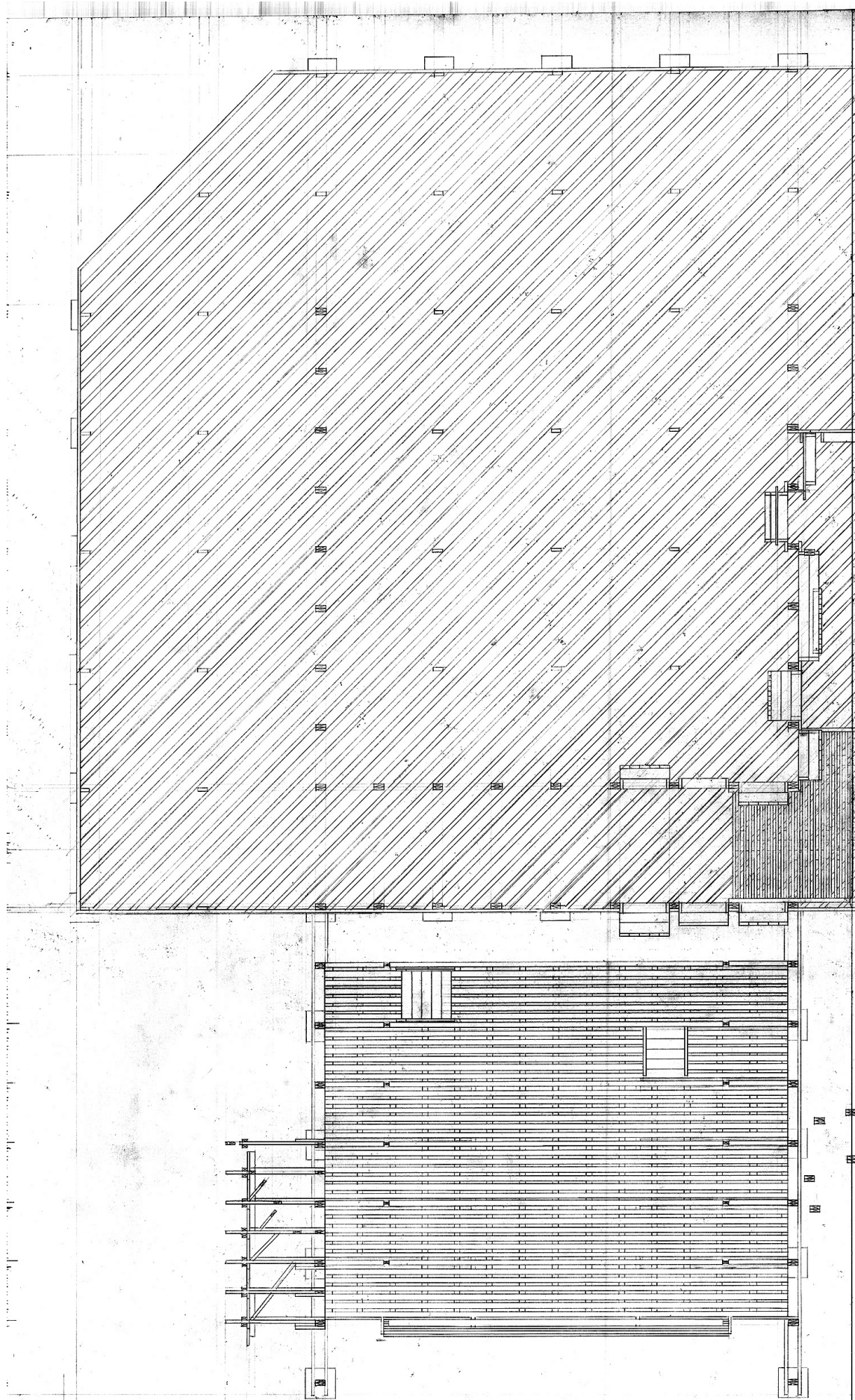
ATELIER RUFER
ELEVATION A 1:20
"LA MACHINE"
FRANÇOIS DECURTINS



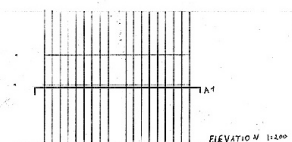


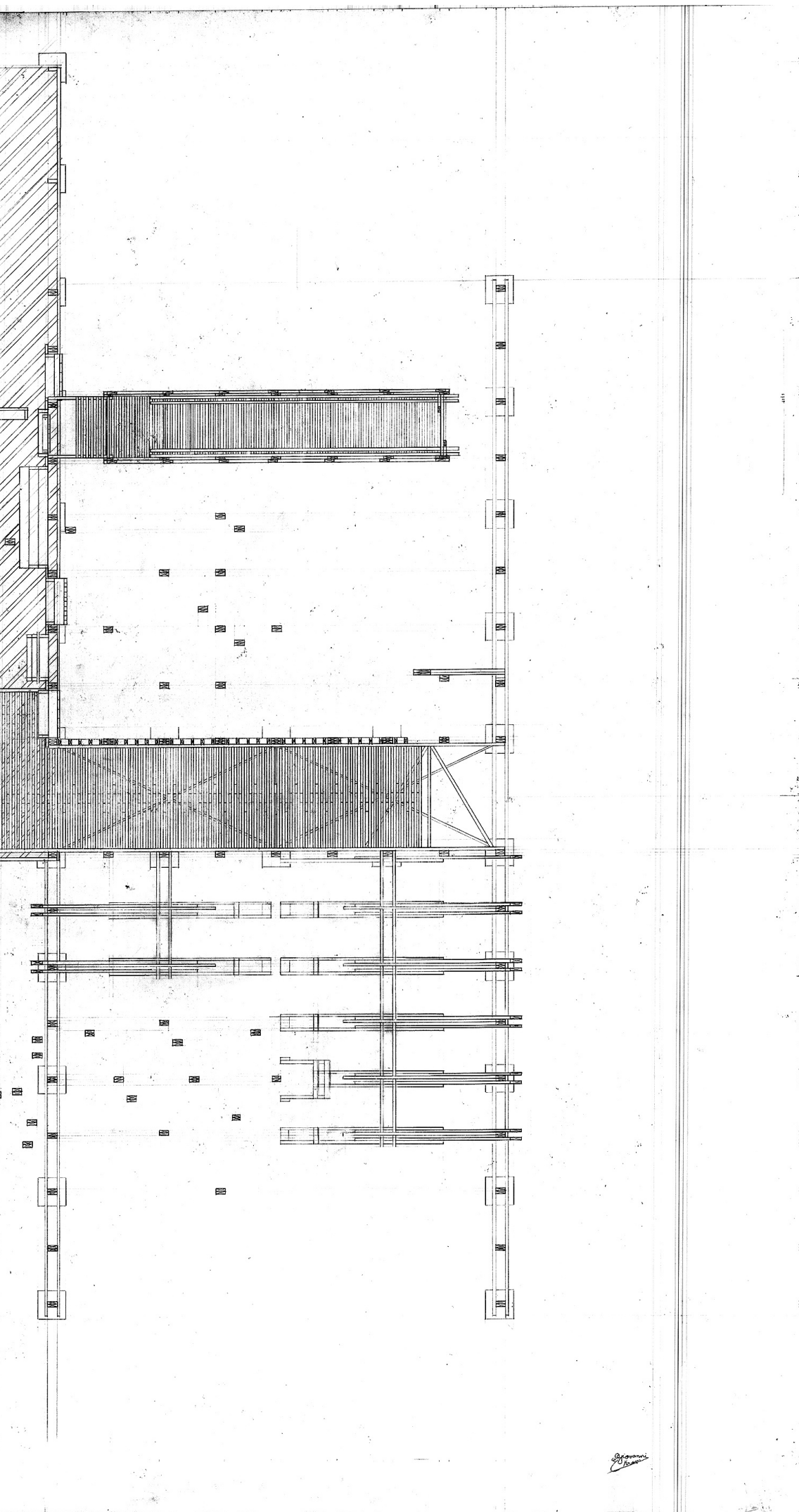




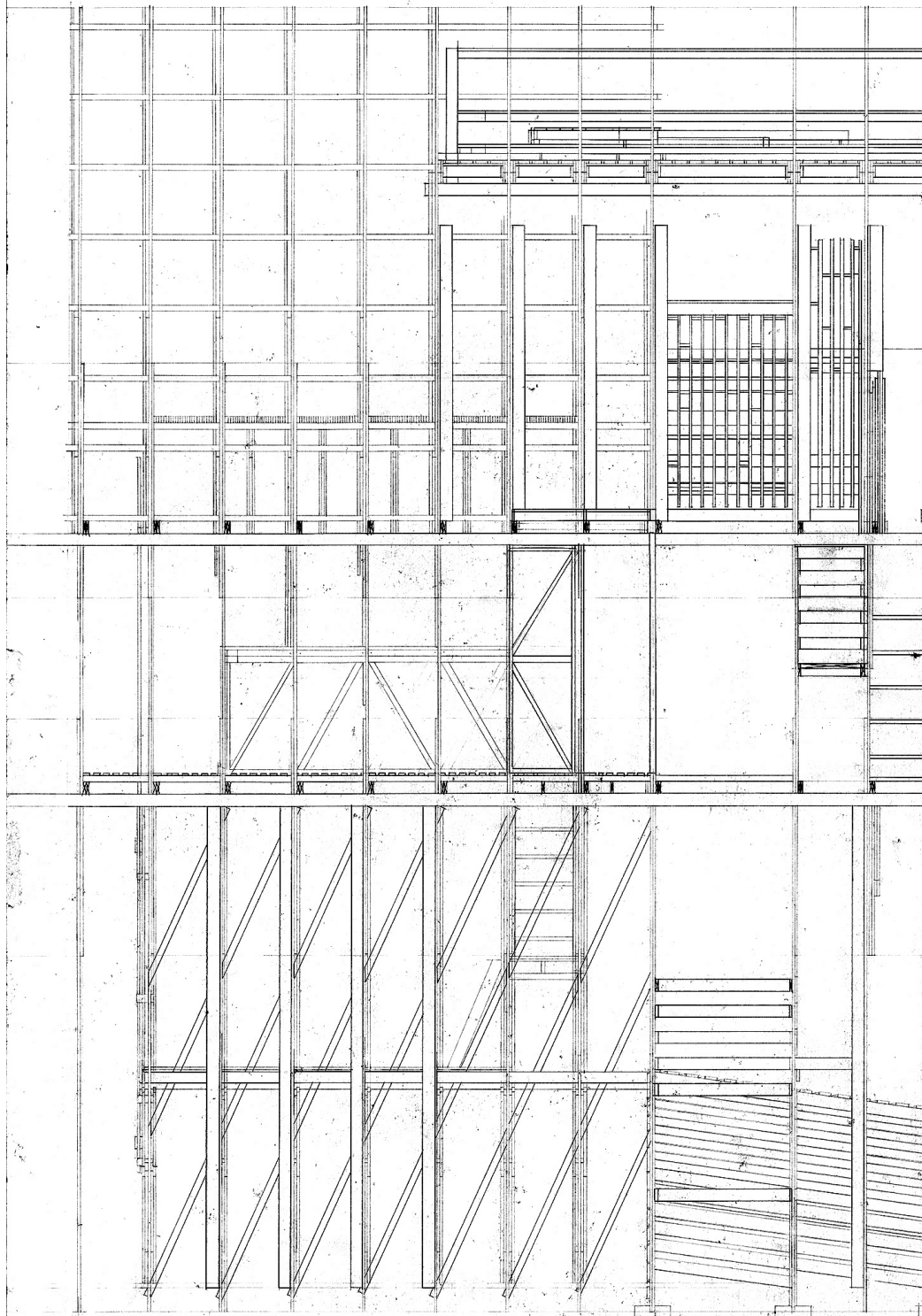


RUFER
PLAN A1 1:20
LA MACHINE

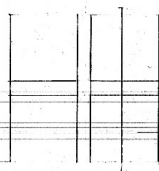


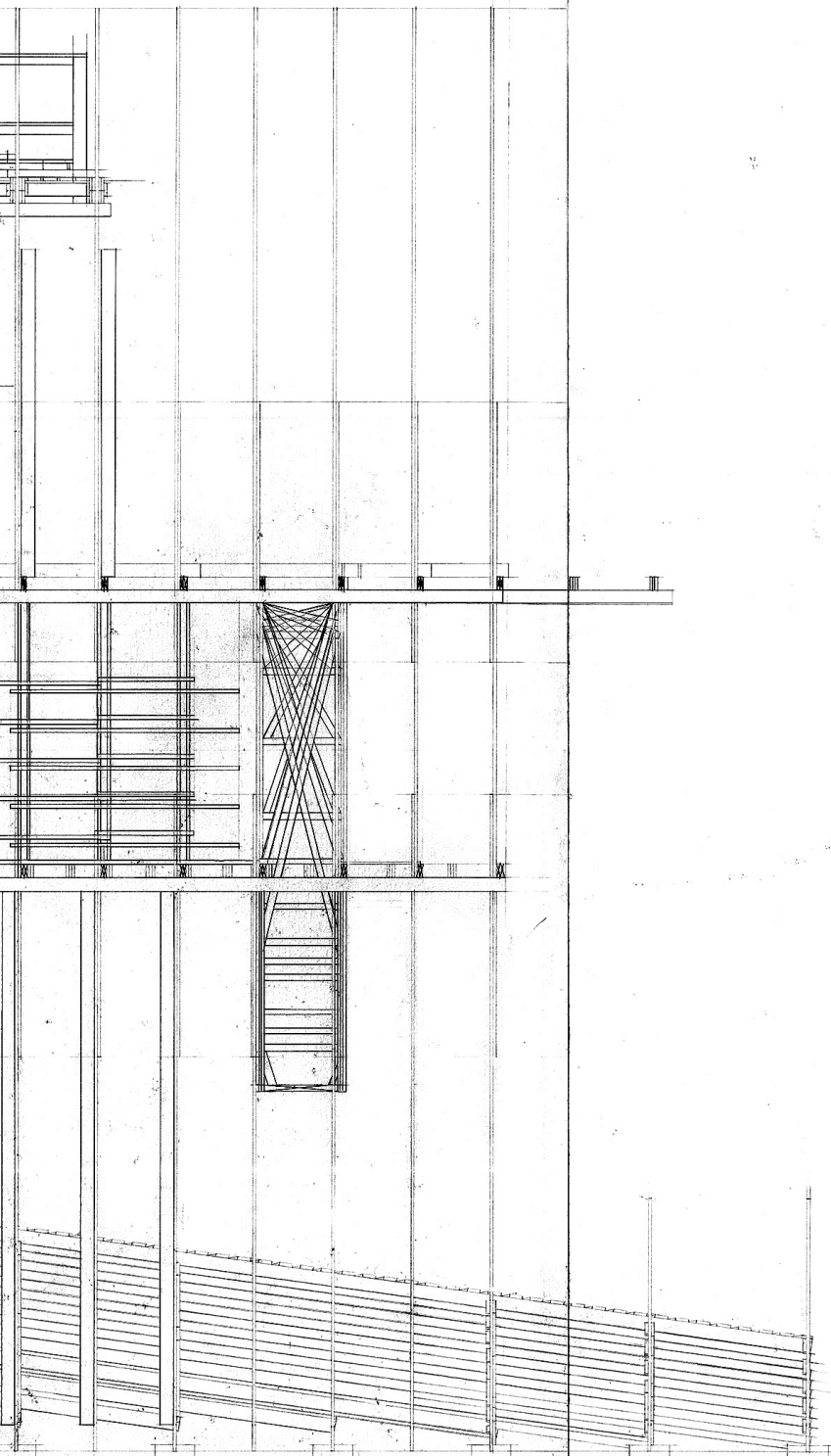


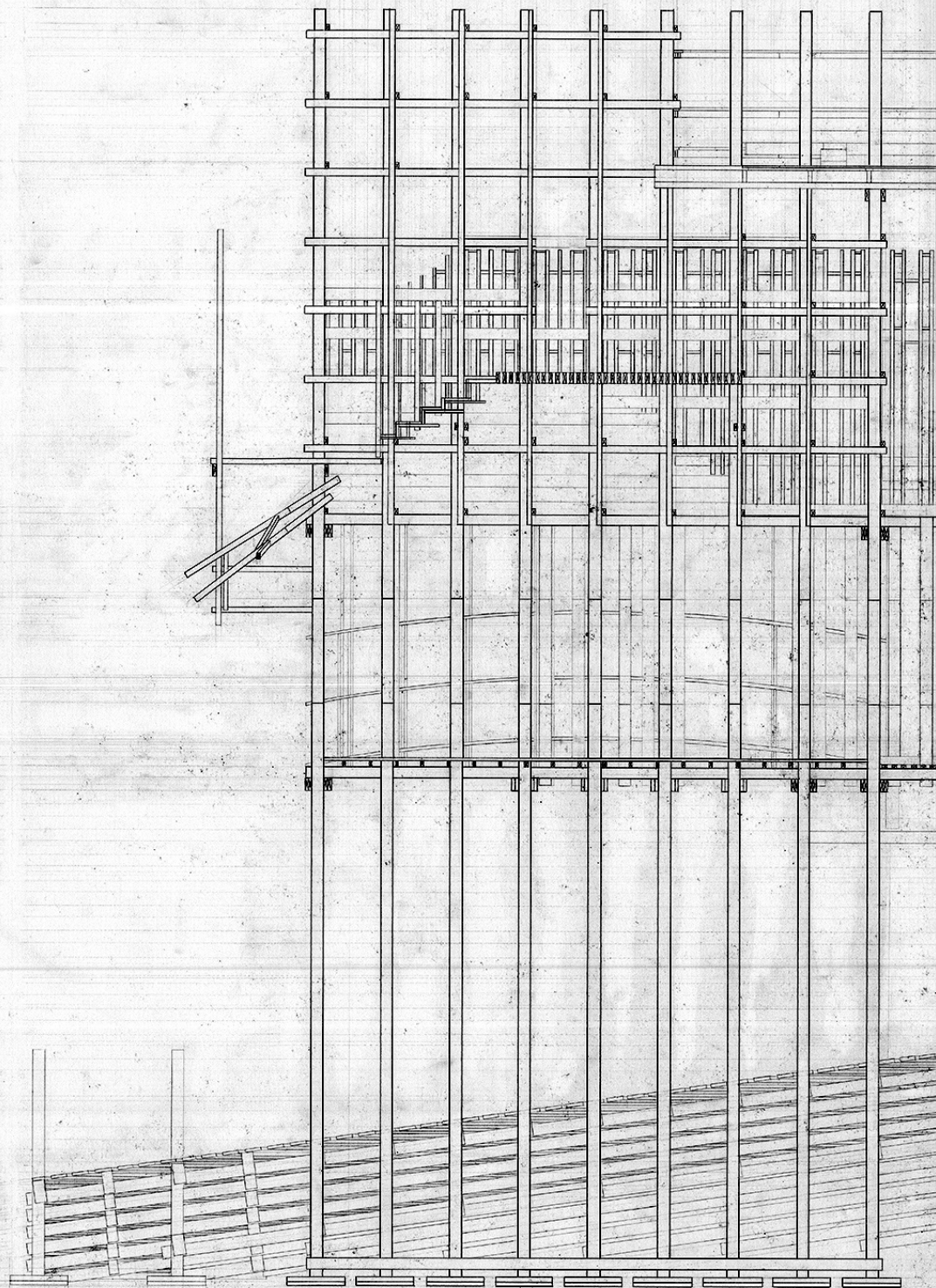
COUPE 1:20 B1



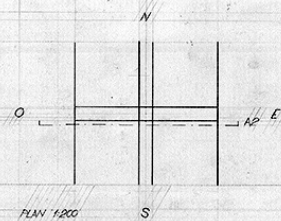
RIFER
COUPE 1:20
LA MANICHE

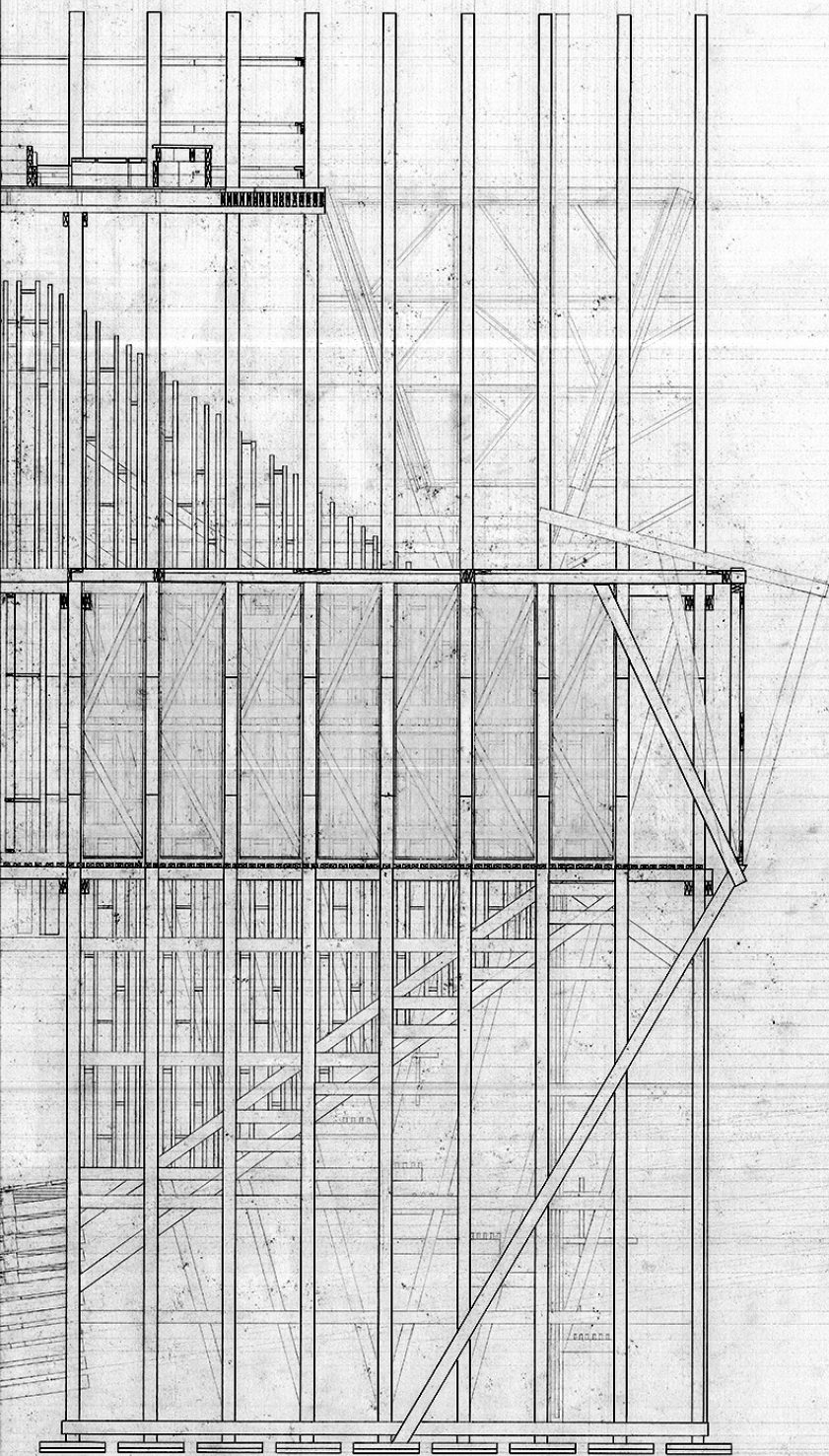


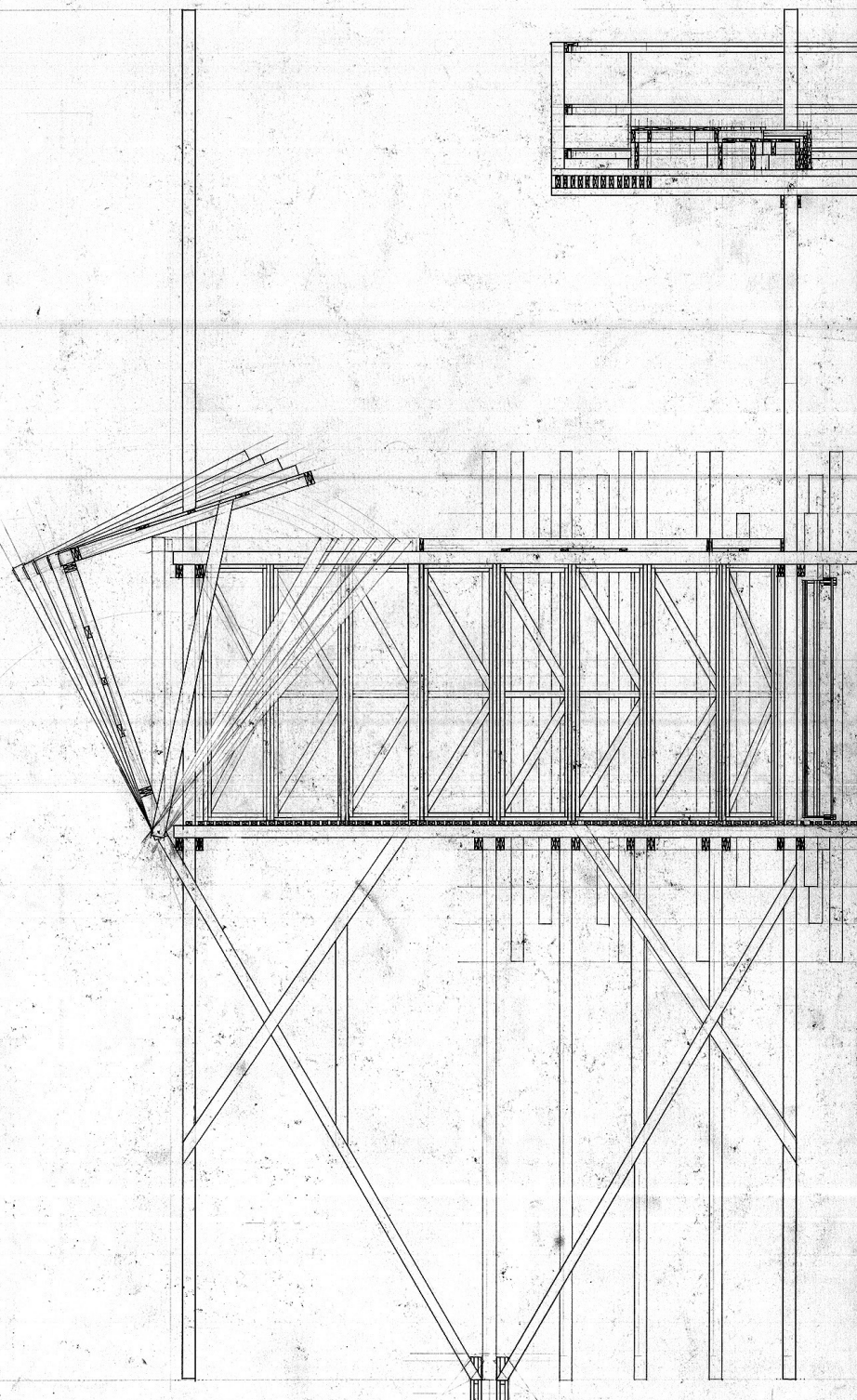
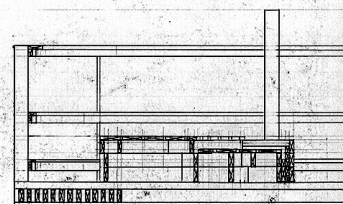




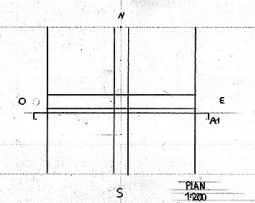
ZIAD WAHIDA
RUFER
COUPE A 1:20
LA MACHINE



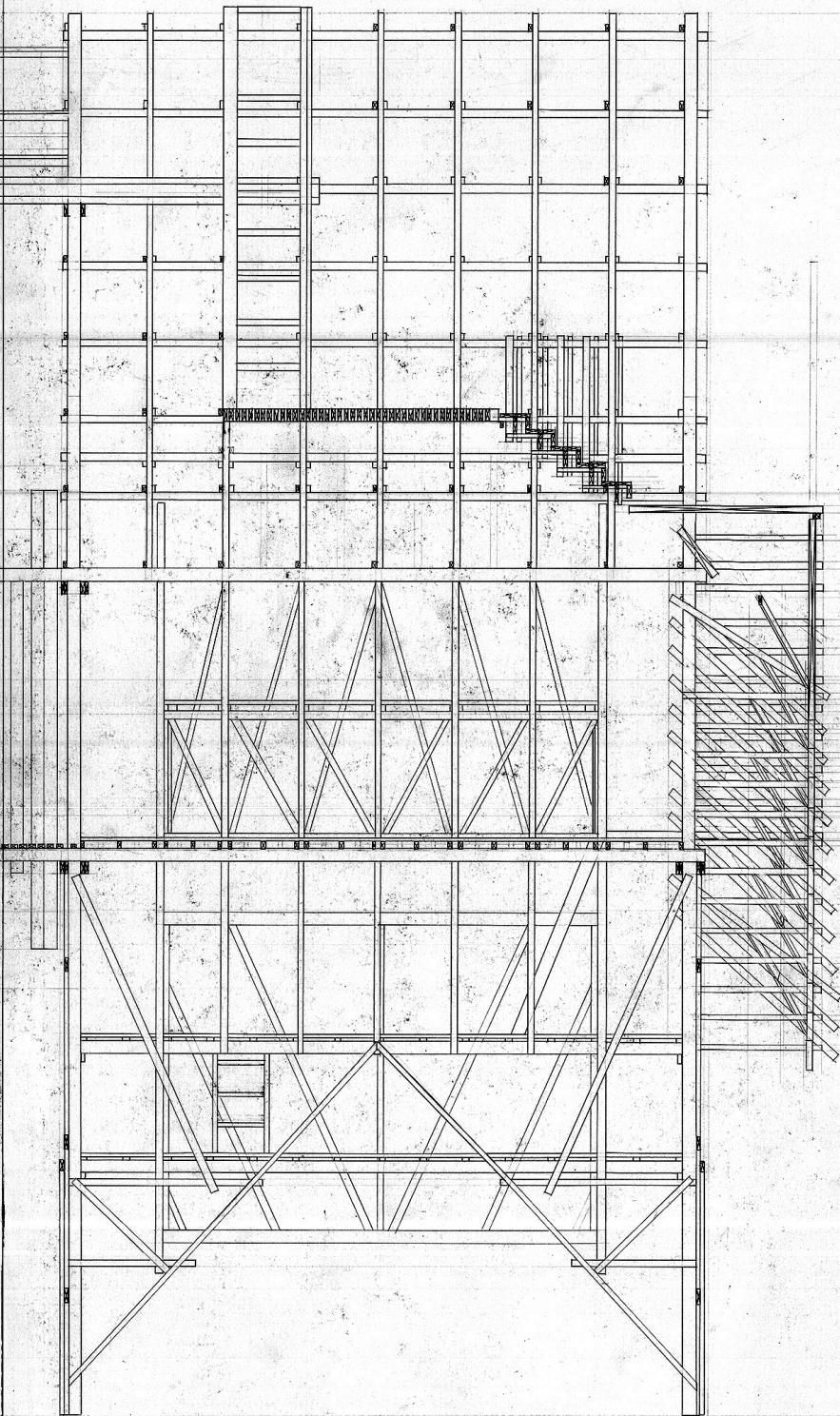


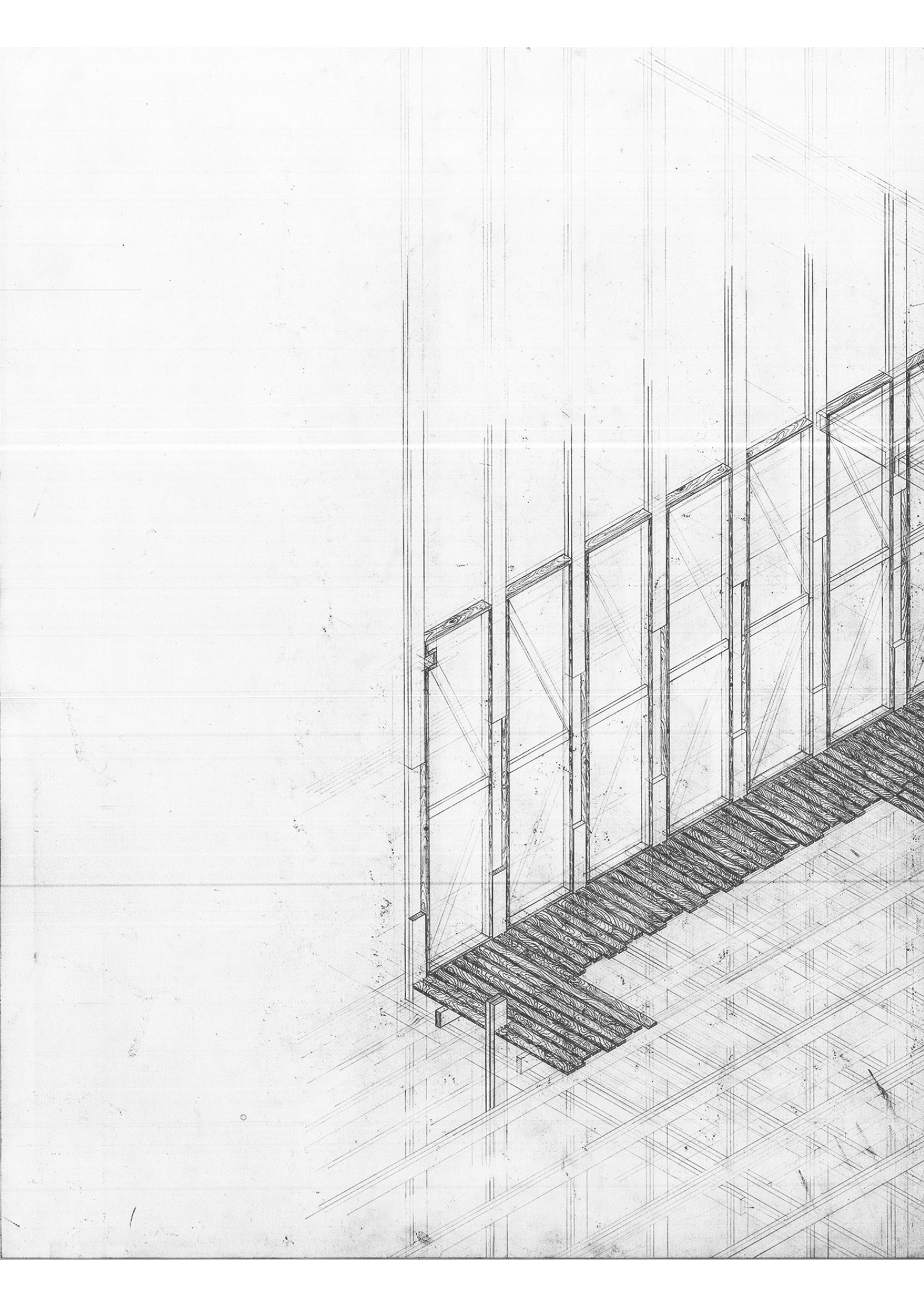


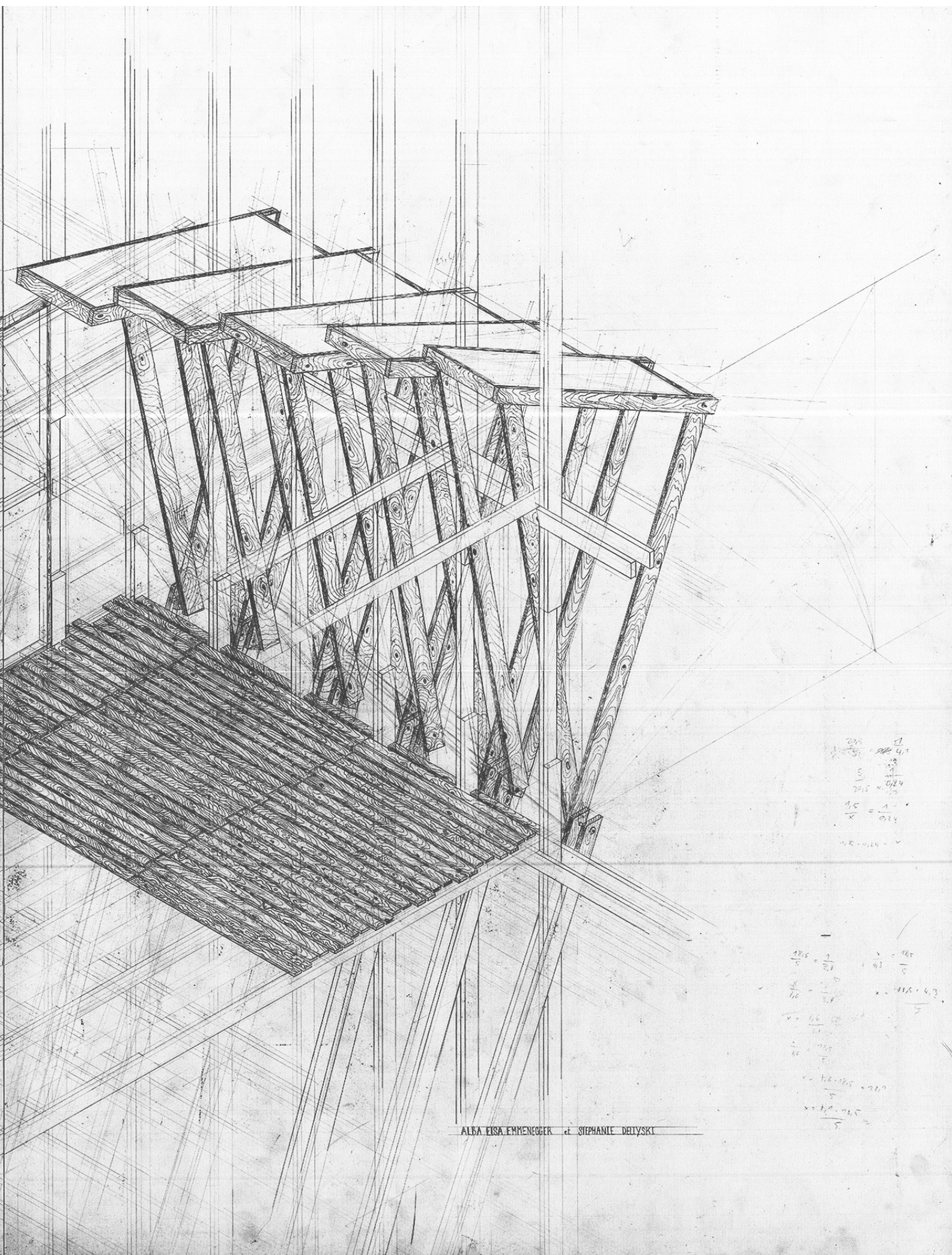
PROJET D'AMBIANCE
RUFER ETAL RUFER
COUPE A1 1:20
LA MACHINE



PLAN
1:200





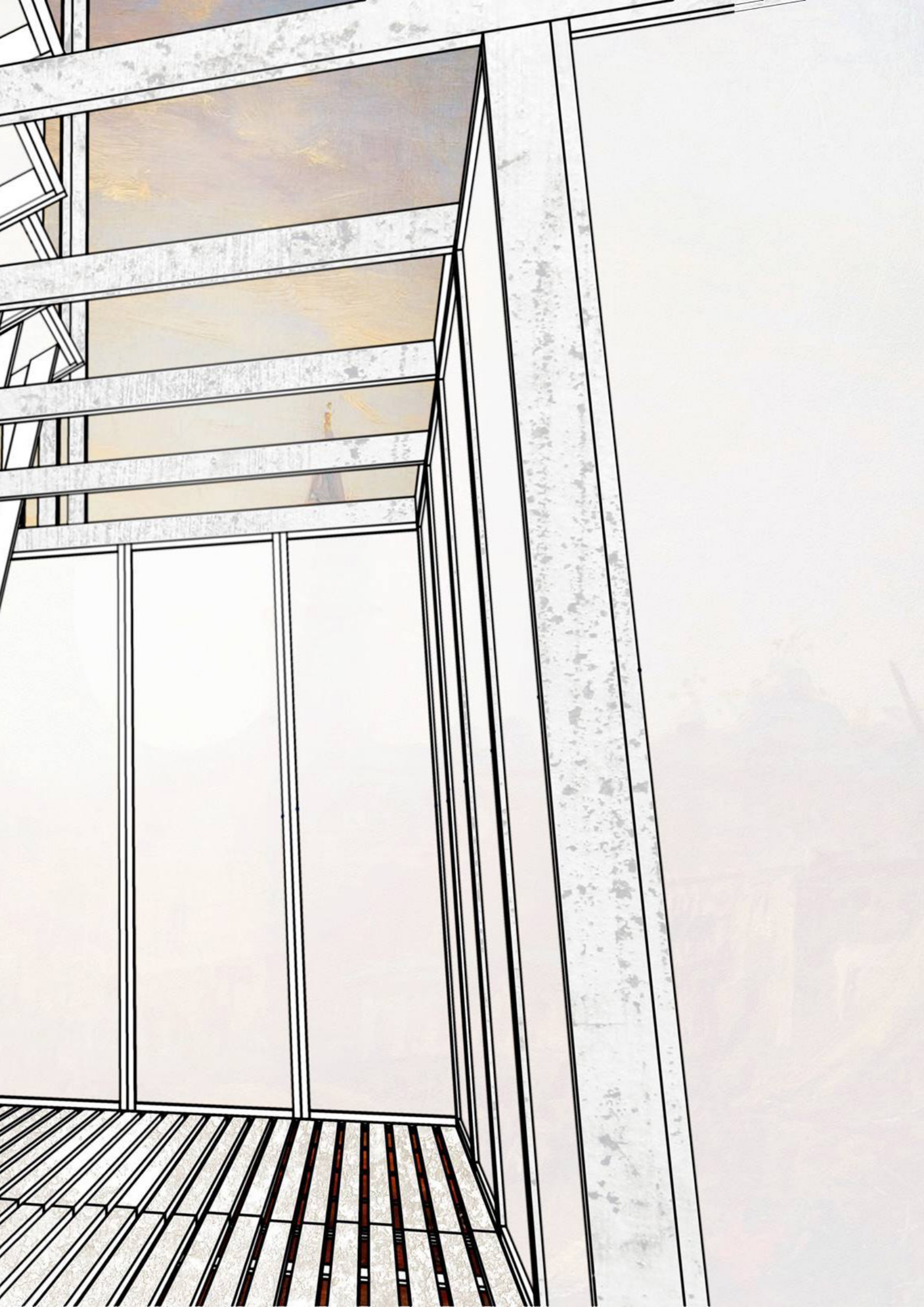


$$\begin{aligned} \frac{245}{5} &= 49 \\ \frac{5}{205} &= 0.024 \\ \frac{15}{8} &= 1.875 \\ 1.5 \cdot 0.024 &= 0.036 \end{aligned}$$

$$\begin{aligned} \frac{285}{5} &= 57 \\ \frac{5}{215} &= 0.023 \\ x &= 1.6 \cdot 0.023 = 0.037 \\ \frac{2}{15} &= 0.133 \\ x &= 1.6 \cdot 0.133 = 0.213 \\ \frac{2}{15} &= 0.133 \\ x &= 1.6 \cdot 0.133 = 0.213 \end{aligned}$$

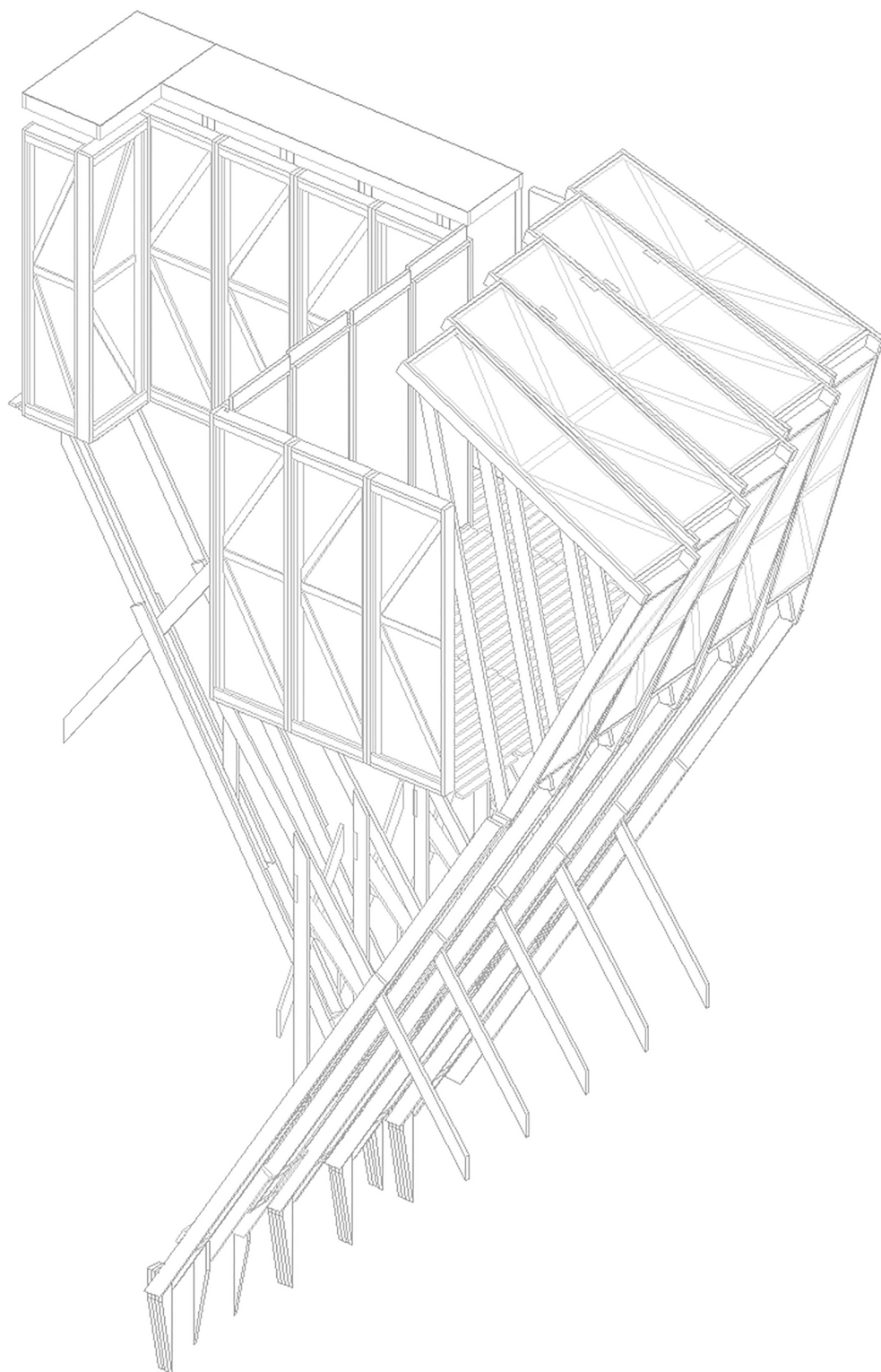
ALBA EISA EMMENEGGER & STEPHANIE DEITSKY





4.

P R O J E T



TEMPS DE MONTAGE : $29h + 15\% = 33h$

PERSONNE NÉCESSAIRES : Tous (selon équipes)

GRANDES SECTIONS : $388.1 [m] + 15\% = 446 [m]$
(90 lattes nécessaires)

PETITES SECTIONS : $300 [m] + 15\% = 345 [m]$
(87 lattes nécessaires)

PIÈCES BOIS : 20 pce, 35x35x170 [mm]

VIS :
160 pce 25 [mm], diam. 5 [mm], inox
287 pce 40 [mm], diam. 4 [mm], inox
316 pce 80 [mm], diam. 6 [mm], inox
871 pce 60 [mm], diam. 4.5 [mm], acier
278 pce 70 [mm], diam. 5 [mm], acier

TIGE FILTÉE : 13.30 [m]

BOULONS : $164 pce + 15\% = 189 pce$, diam. 8 [mm]

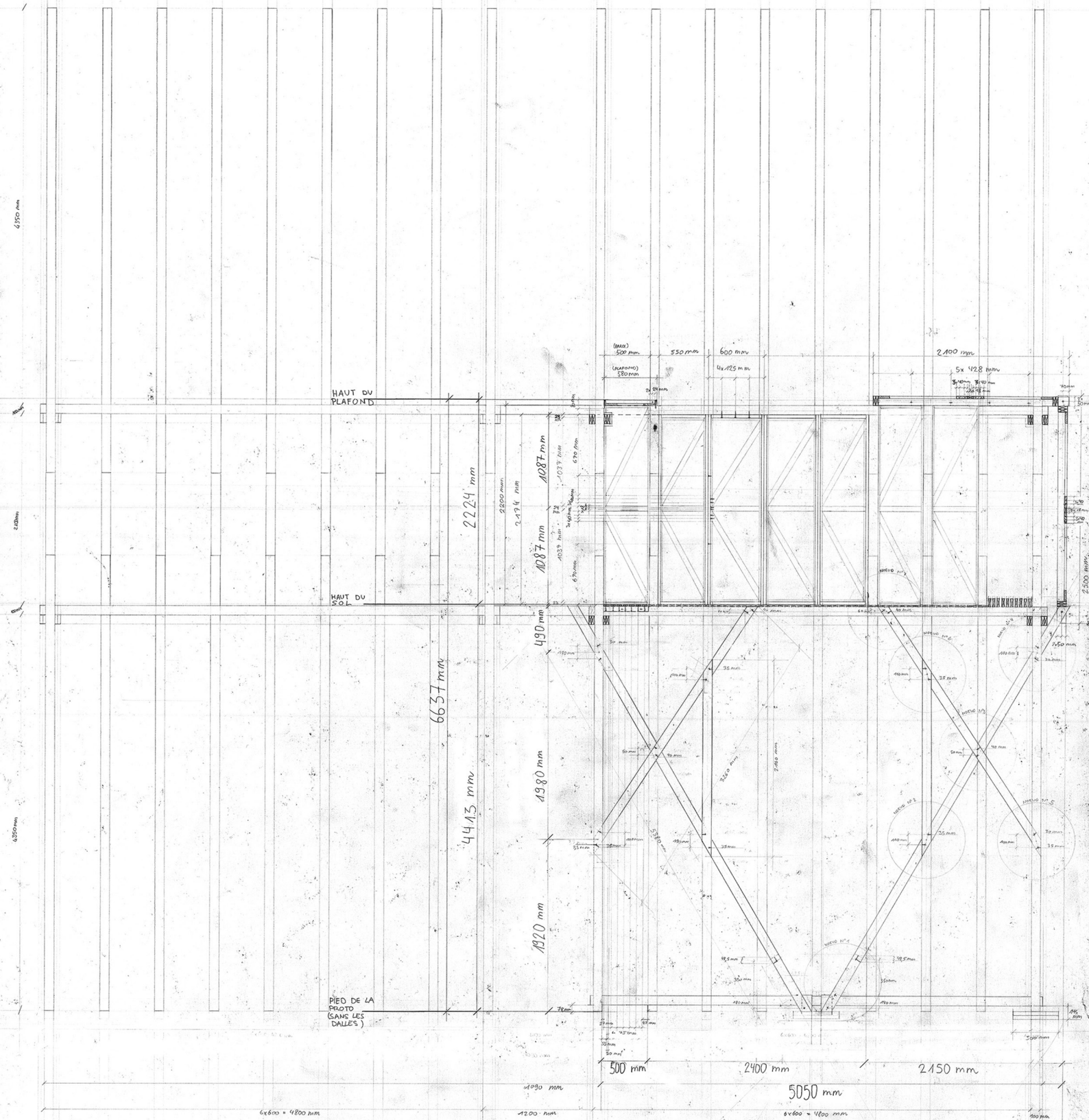
RONDELLES :
152 pce, diam. 8 [mm]
48 pce, diam. 10 [mm]

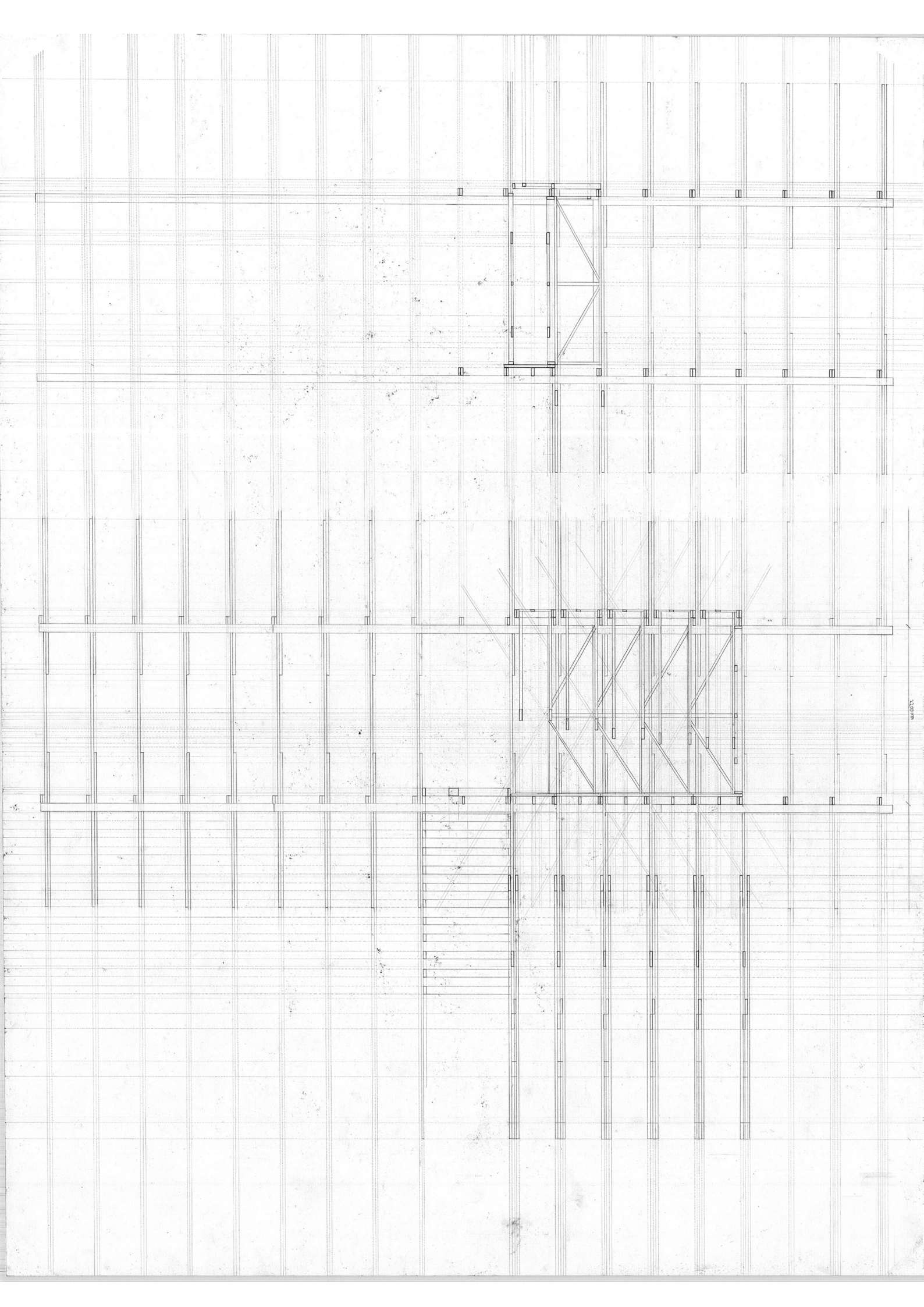
TUYAU ALUMINIUM :
110 [cm], diam. 8 [mm]
épaisseur 1 [mm]
21 [cm], diam. 12 [mm]

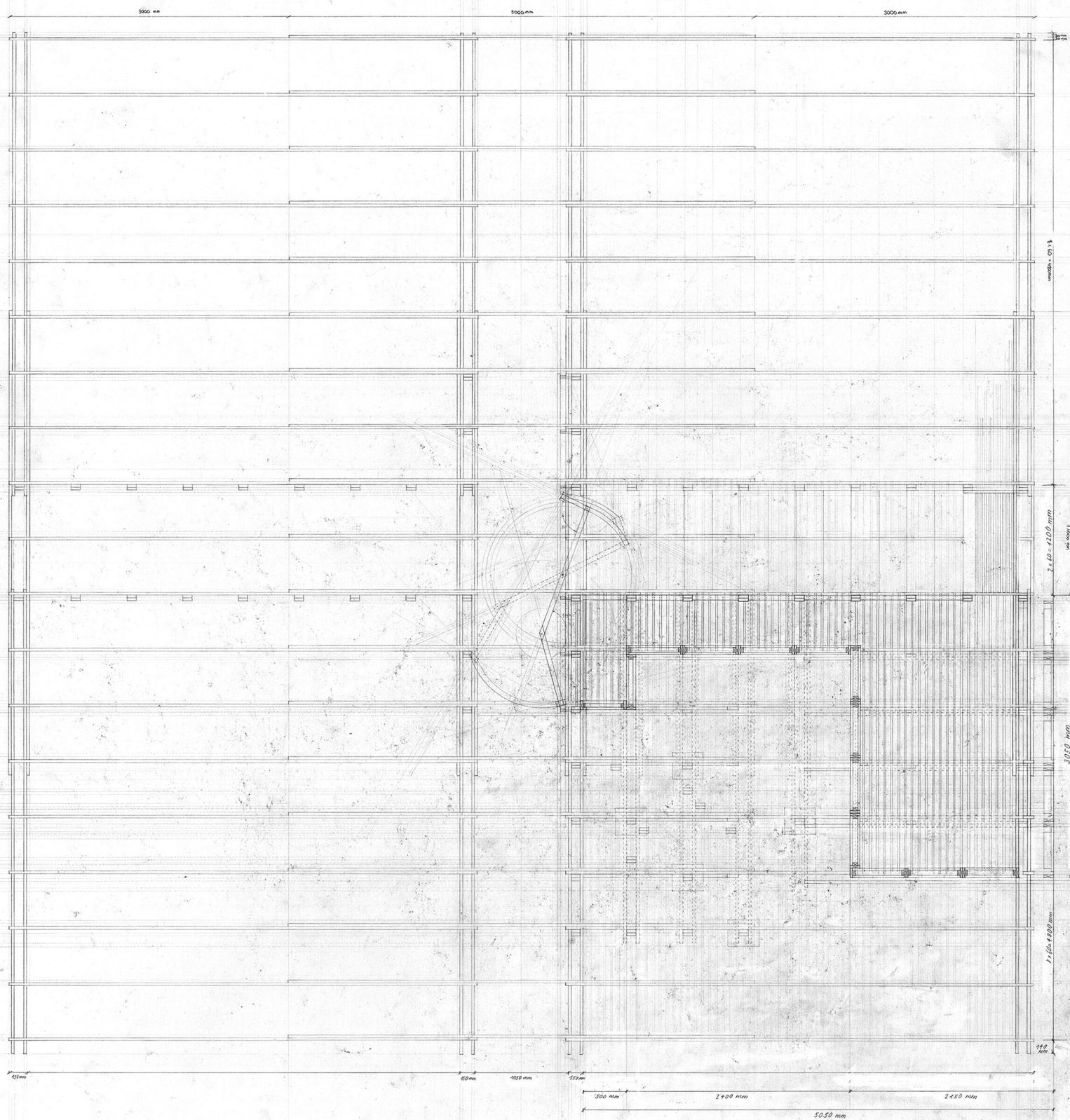
TISSU : $27.25 [m^2] + 15\% = 30 [m^2]$

POIDS : 344 [kg]

NOMBRE D'ÉLÉMENTS PRÉFABRIQUÉS : 39 éléments

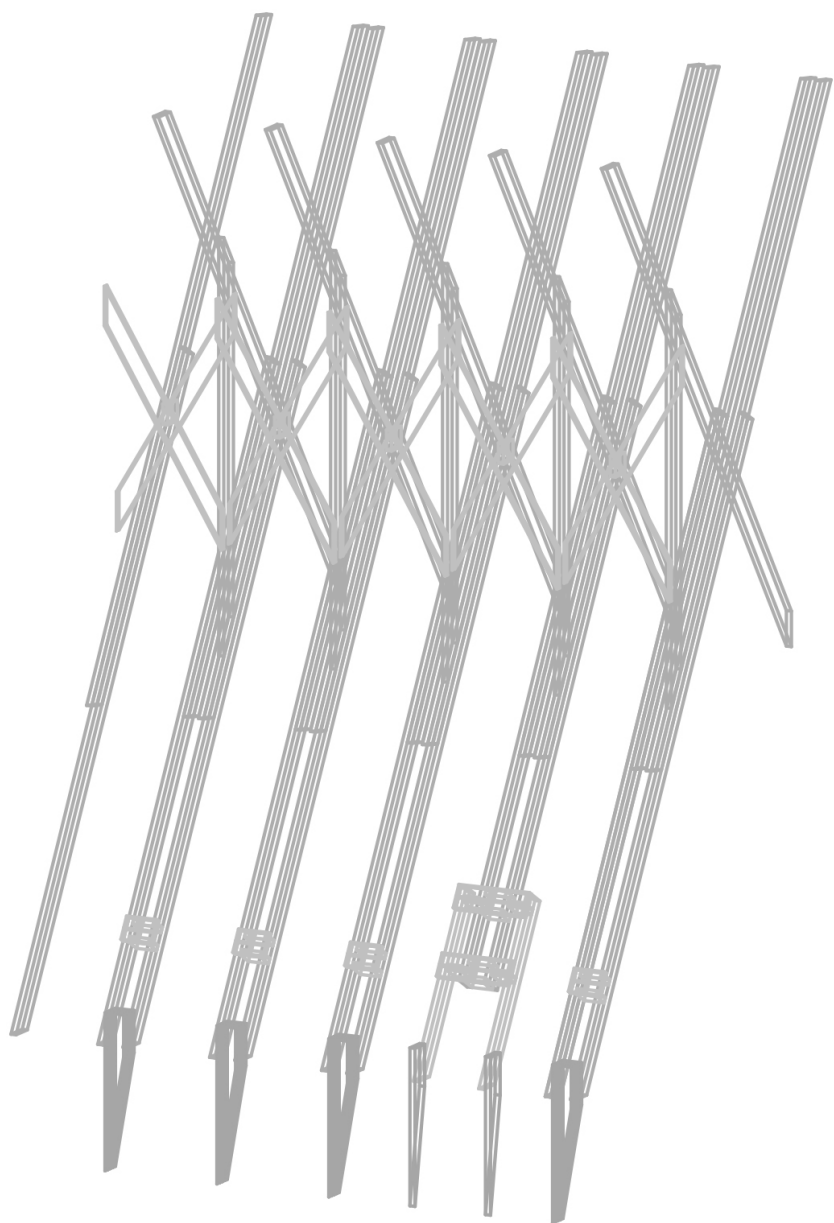






5.

TREILLIS



TEMPS DE MONTAGE : 4h

PERSONNE NÉCESSAIRES : 6

GRANDES SECTIONS : 140 [m] (20 [m]/élément)

PETITES SECTIONS : -

PIÈCES BOIS : -

VIS : 88 pce 40 [mm], diam. 6 [mm], inox
25 pce 80 [mm], diam. 6 [mm], inox

TIGE FILTÉE : 12 [m], diam. 8 [mm]

BOULONS : 140 (20/élément), diam. 8 [mm]

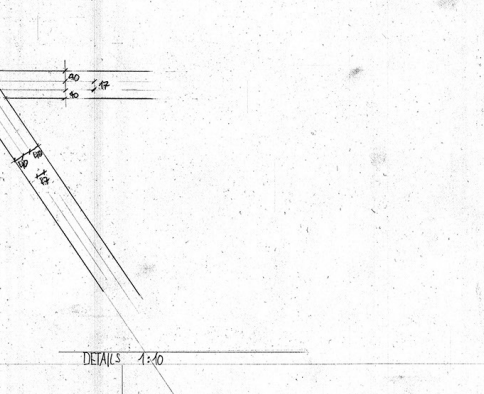
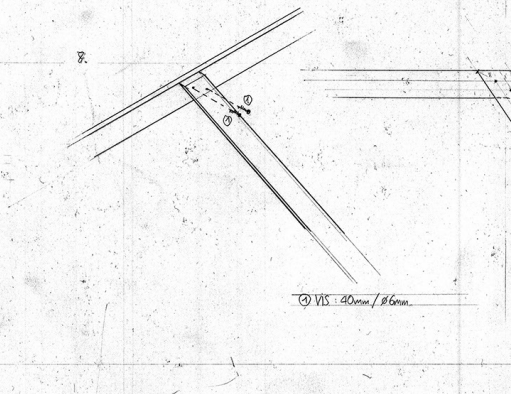
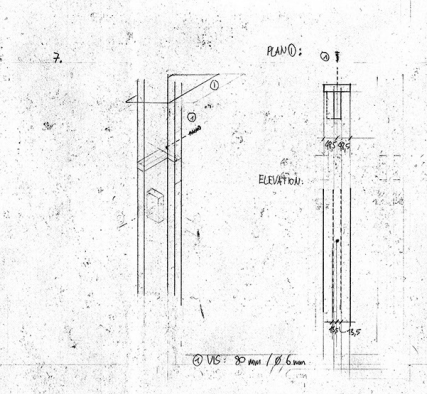
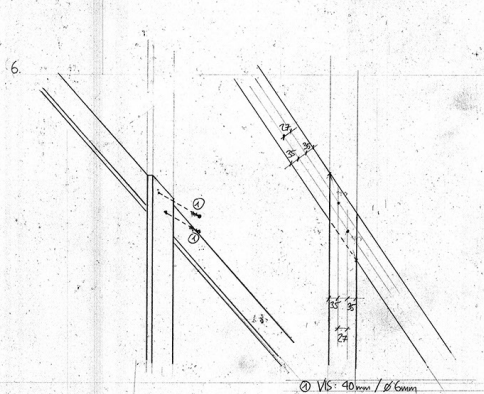
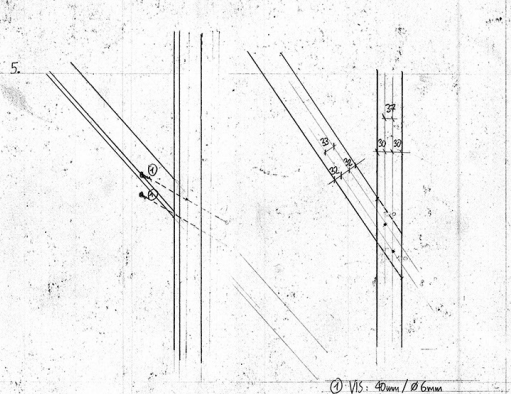
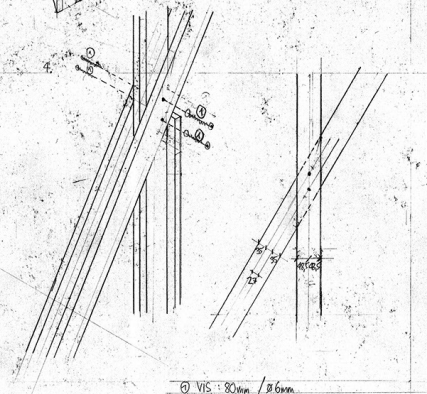
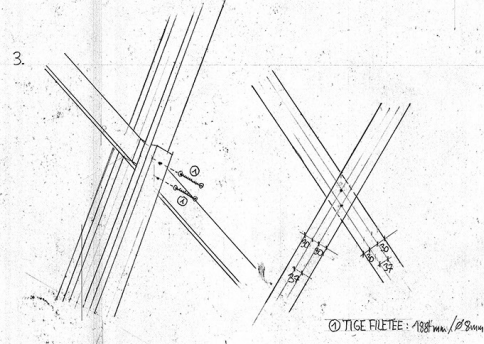
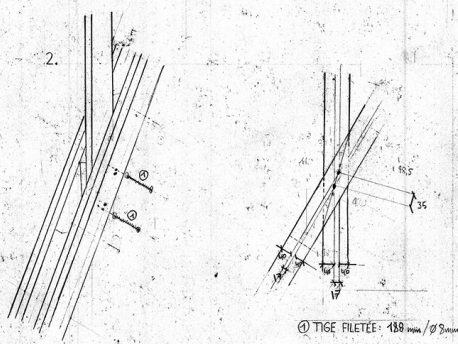
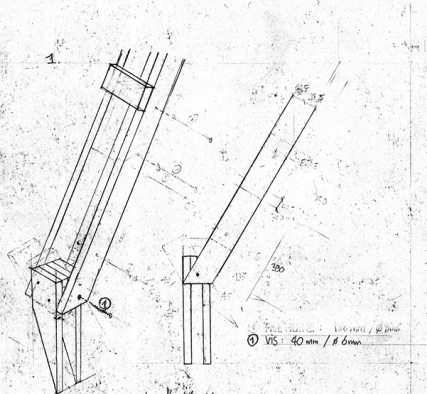
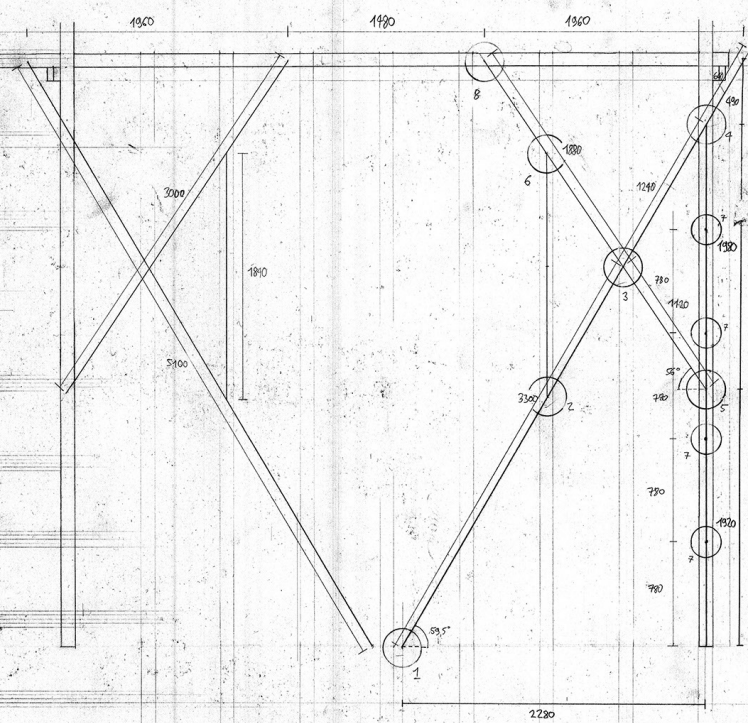
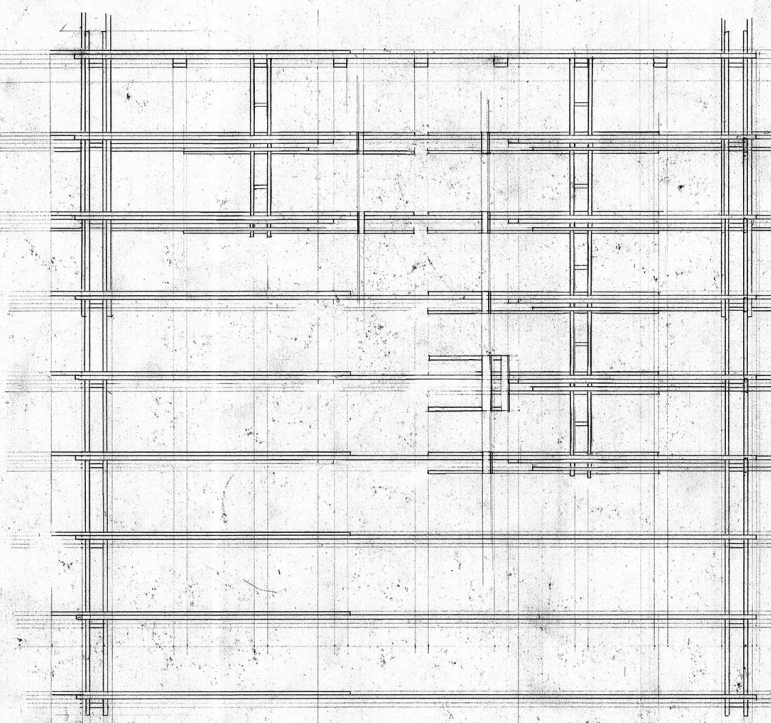
RONDELLES : 140 (20/élément), diam. 8 [mm]

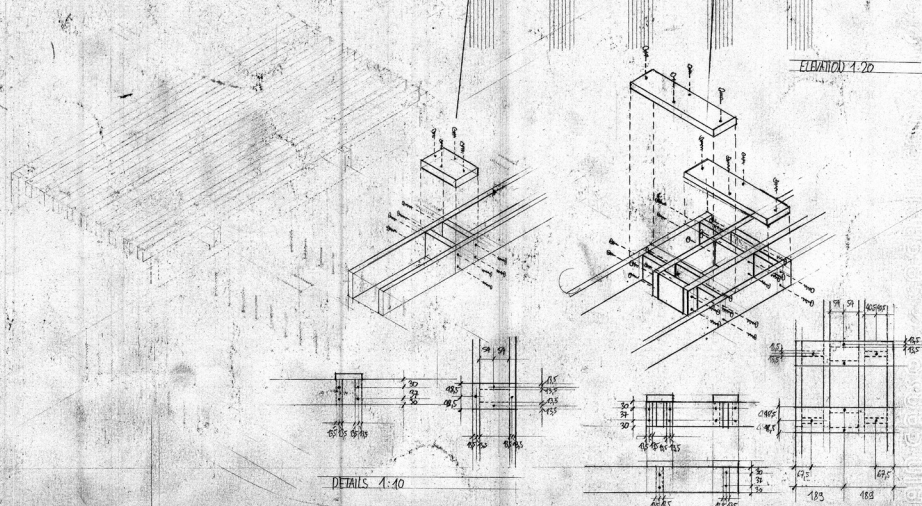
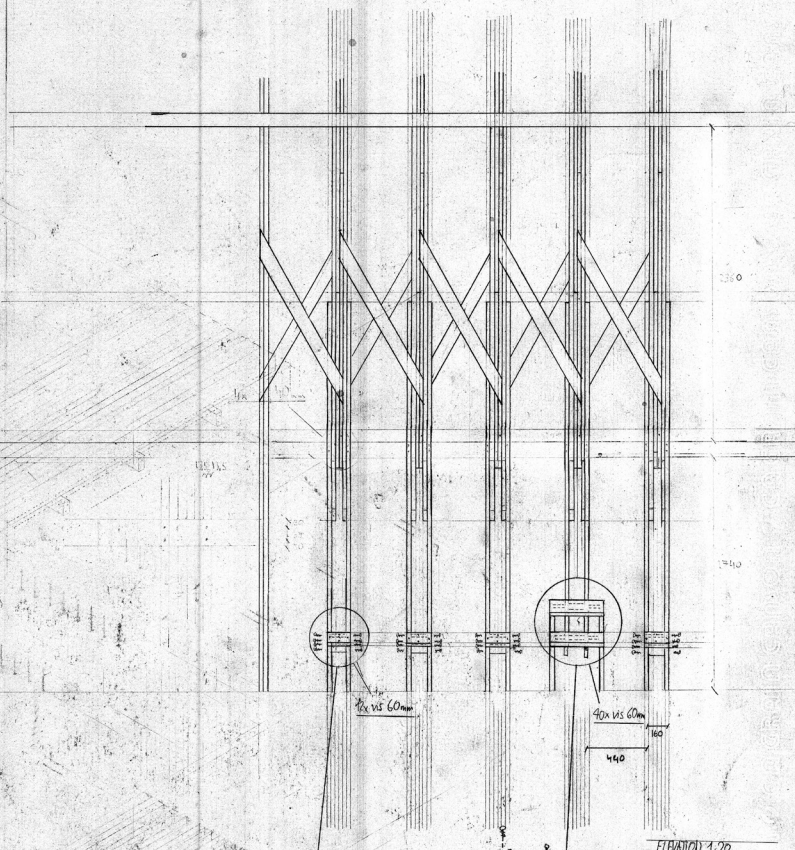
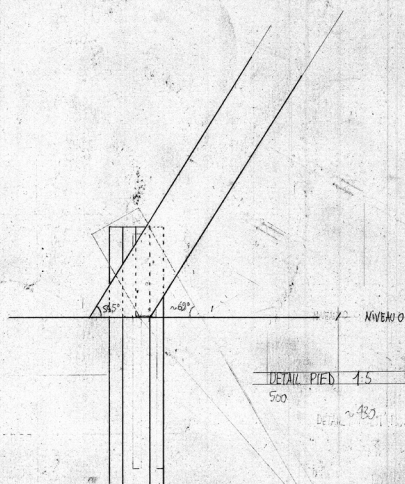
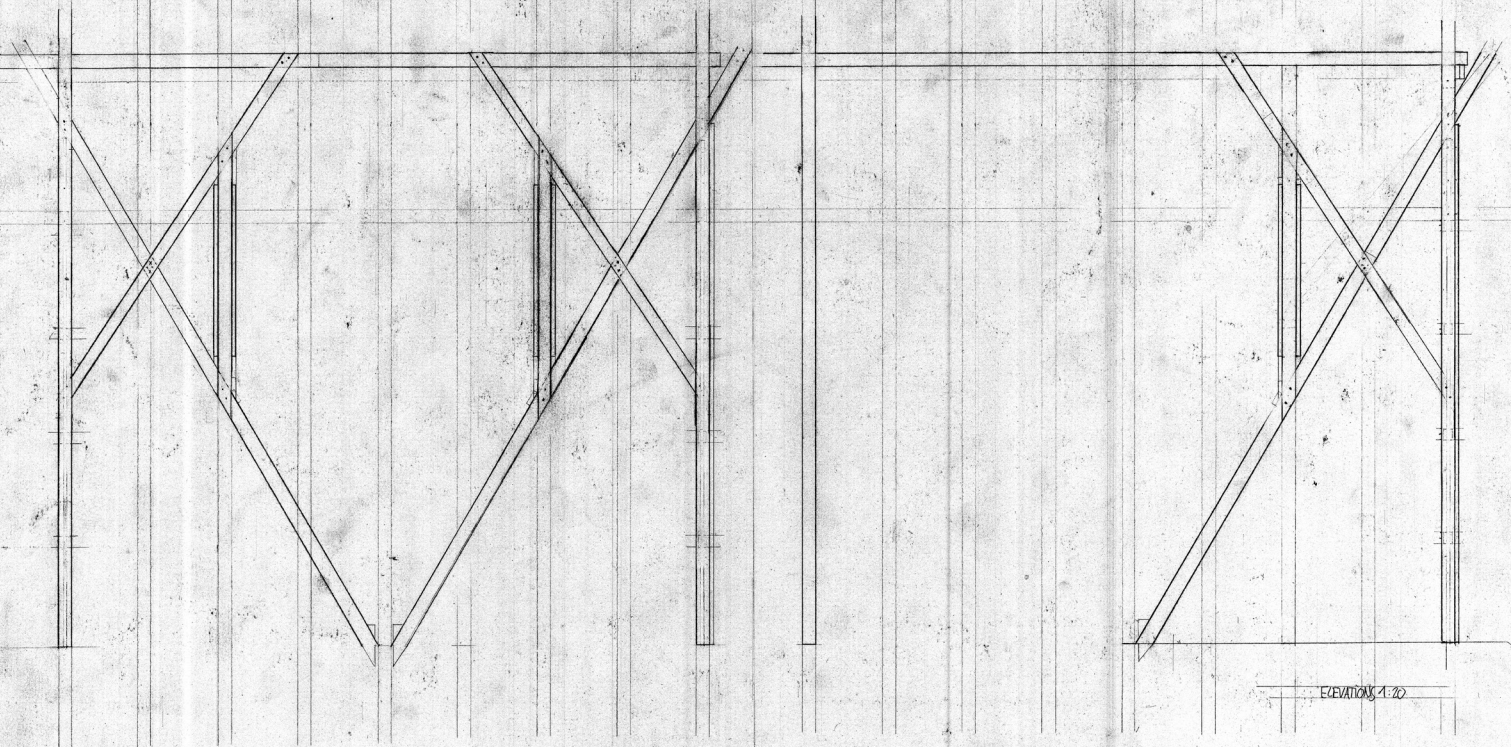
TUYAU ALUMINIUM : -

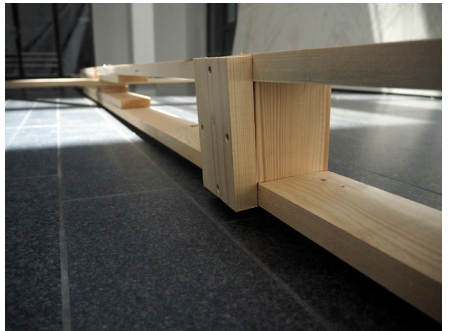
TISSU : -

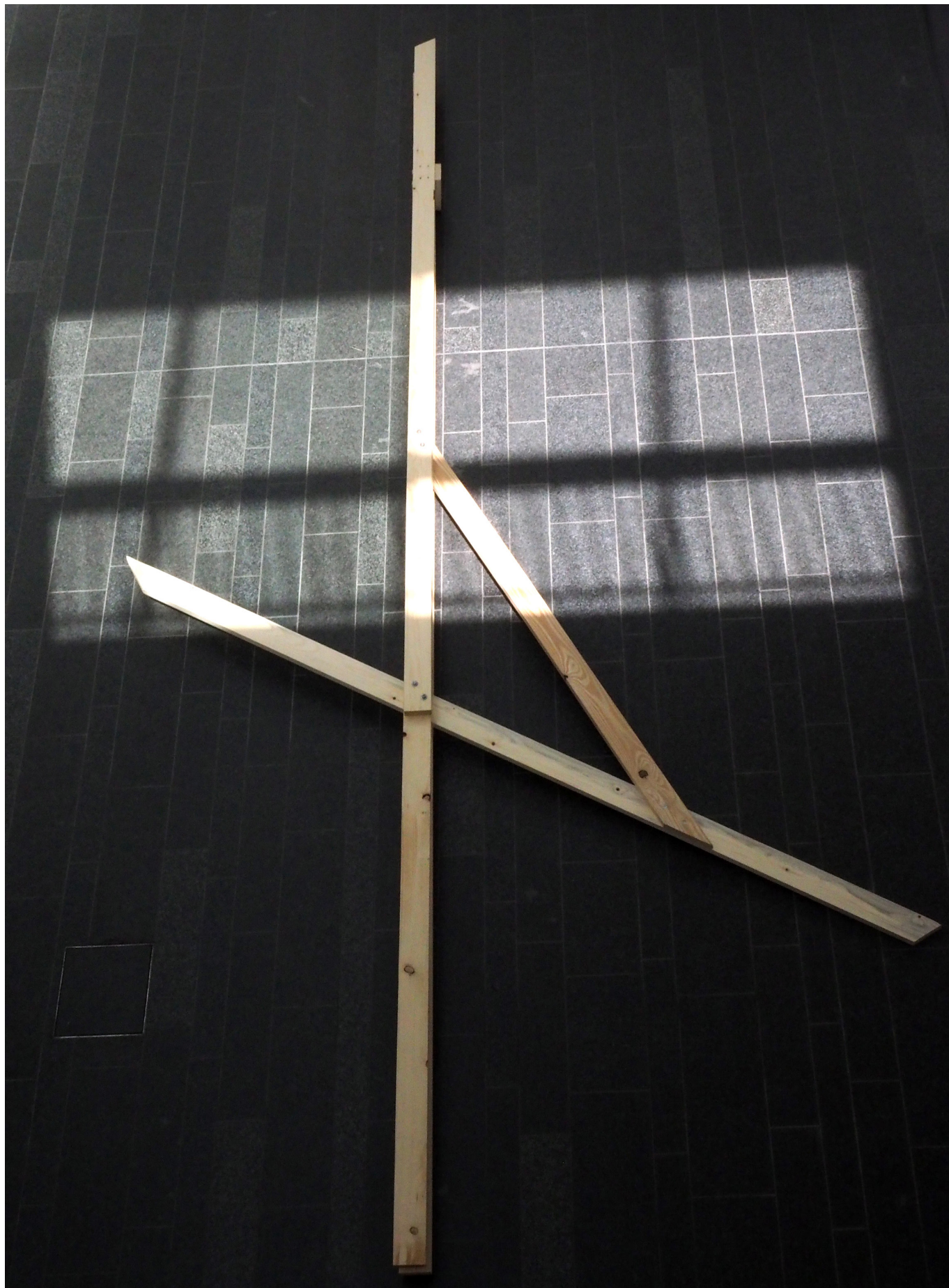
POIDS : 126 [kg] (18 [kg]/élément)

NOMBRE D'ÉLÉMENTS PRÉFABRIQUÉS : 7 éléments



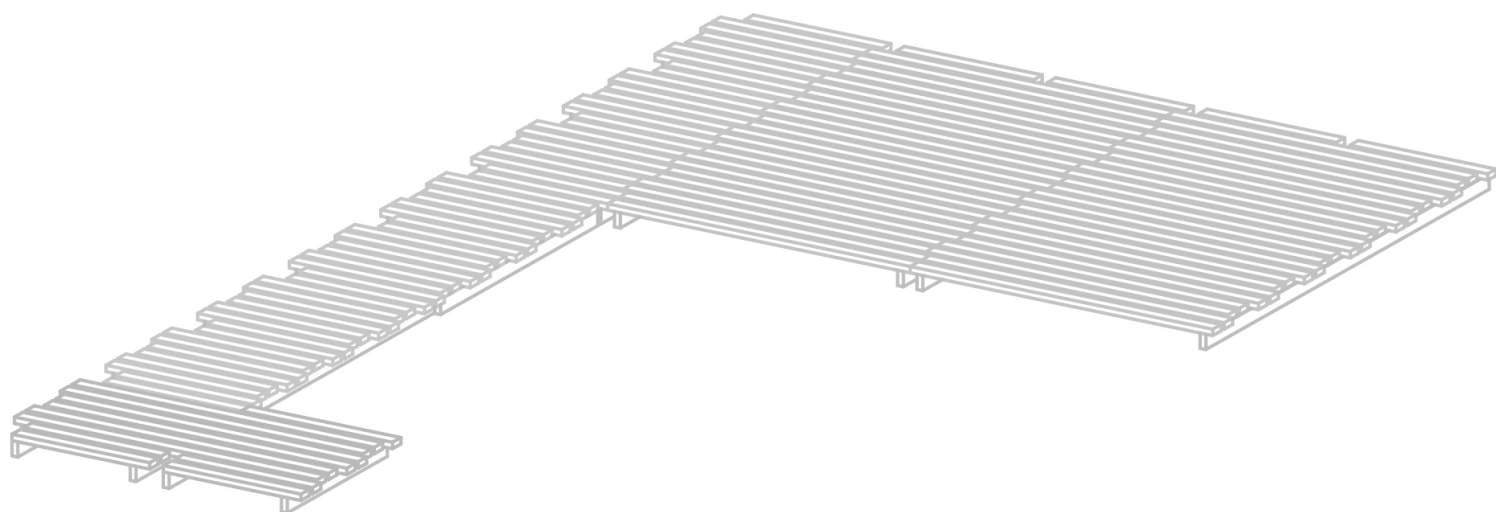






6.

S O L



TEMPS DE MONTAGE : 5h

PERSONNE NÉCESSAIRES : 6

GRANDES SECTIONS : 21 [m]

PETITES SECTIONS : 123 [m]

PIÈCES BOIS : 20 pce, 35x35x170 [mm]

VIS : 160 pce 25 [mm], diam. 5 [mm], acier
 200 pce 40 [mm], diam. 6 [mm], inox
 278 pce 70 [mm], diam. 5 [mm], acier

TIGE FILTÉE : -

BOULONS : -

RONDELLES : -

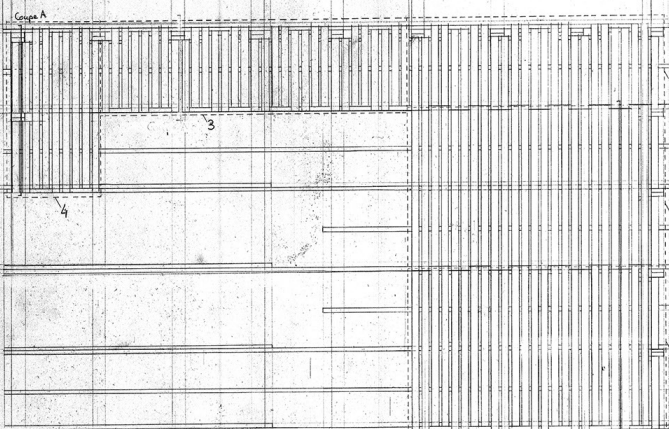
TUYAU ALUMINIUM : -

TISSU : -

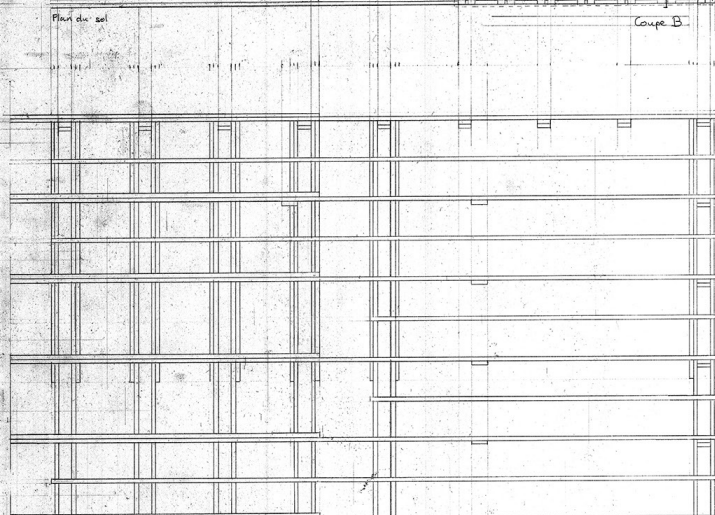
POIDS : MODULE 1 (2x) : 18 [kg]
 MODULE 2 : 19 [kg]
 MODULE 3 : 14 [kg]
 MODULE 4 : 6.7 [kg]
 SOLIVES : 25 [kg]

NOMBRE D'ÉLÉMENTS PRÉFABRIQUÉS : 5 éléments

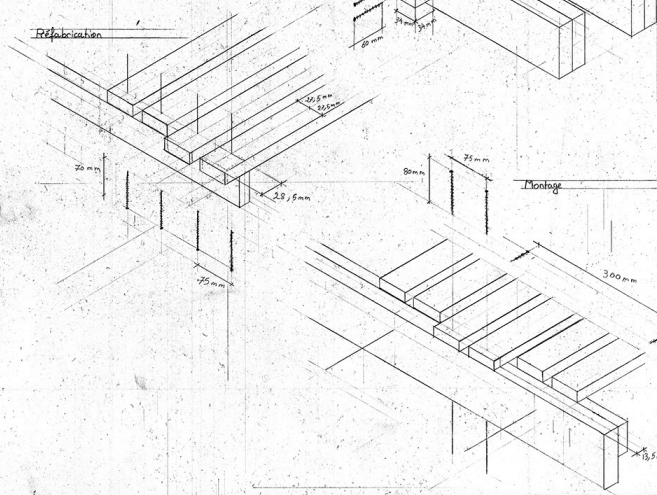
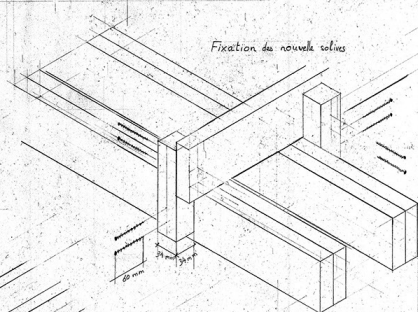
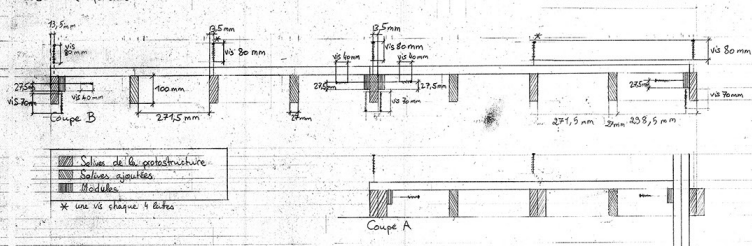
MODULE 1



Plan du sel



Plan de la structure inférieure



MODULE 1

24	x	1200	mm
2	x	546	mm
2	x	205	mm
1	x	1080	mm
1	x	430	mm
1	x	1855	mm

VIS:
55 x 70 mm
47 x 40 mm

MODULE 2

18	600	mm mm
7	516	mm mm
6	430	mm mm
1	1855	mm mm
1	205	mm mm

VIS:
62 x 70 mm
38 x 40 mm

MODULE 3

24	x	600	ms
8	x	546	ms
8	x	430	ms
1	x	2030	ms
1	x	1405	ms

VIS:
79 x 70 mm
48 x 60 mm

MODULE 4

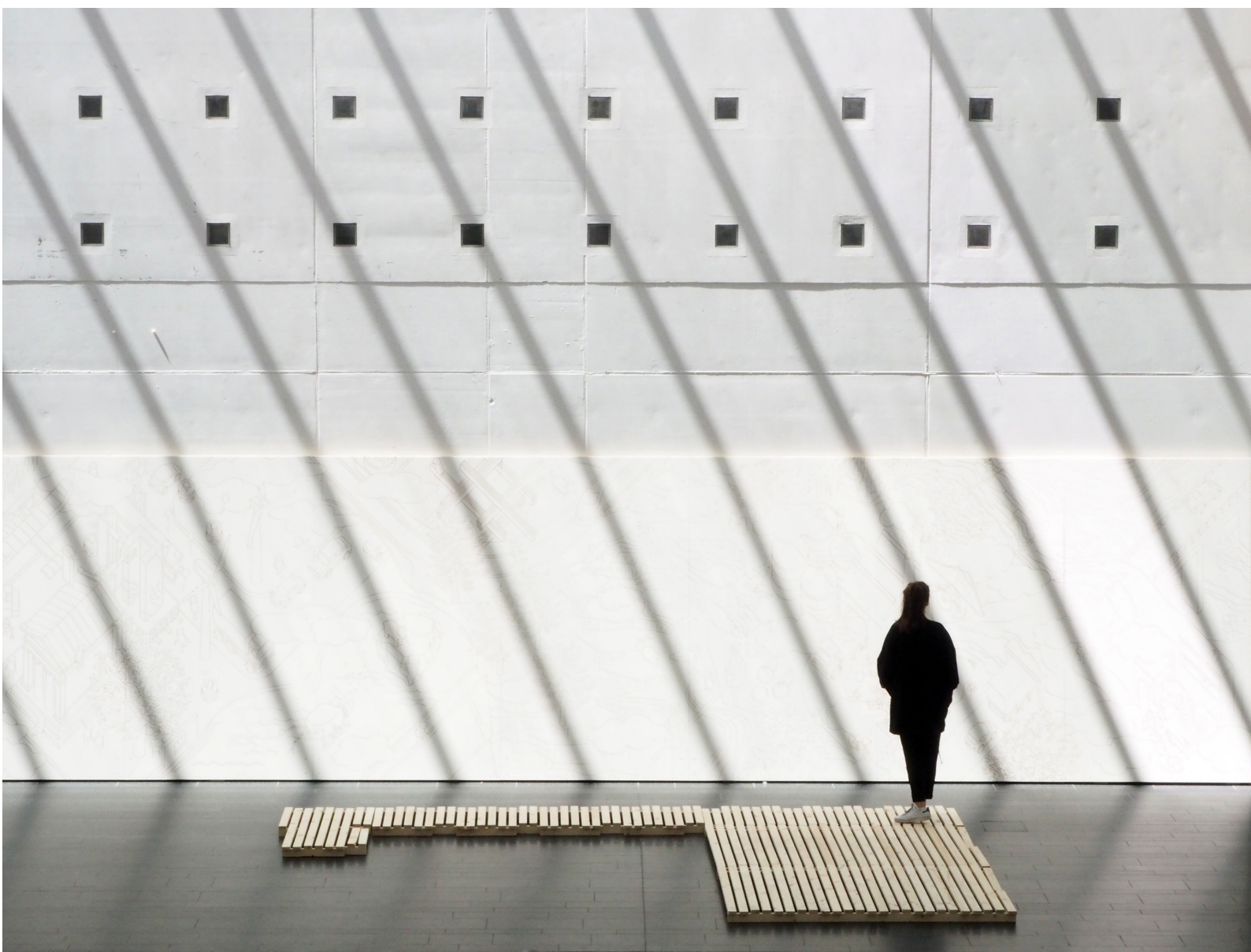
6	x	1200	ms. 205
4	x	546	ms. 205
2	x	280	ms. 205
1	x	430	ms. 205
1	x	205	ms. 205
1	x	655	ms. 205
1	x	600	ms. 205

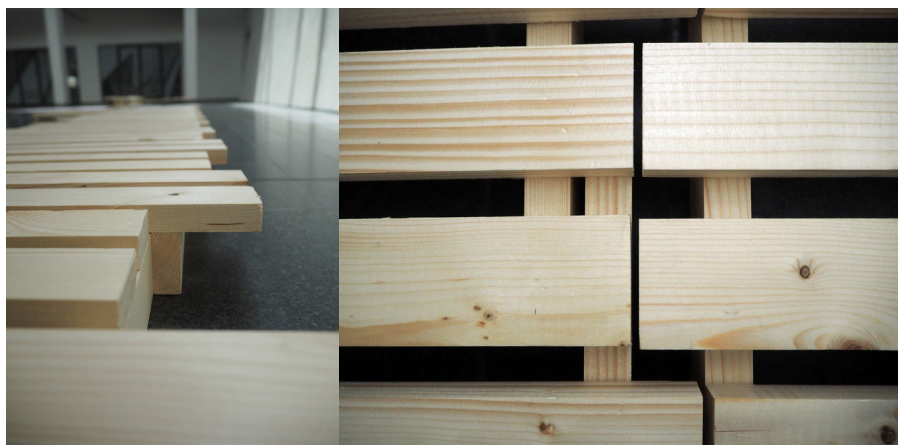
VIS:
27 x 30 mm
19 x 40 mm

501YES

37-4968
2-2642

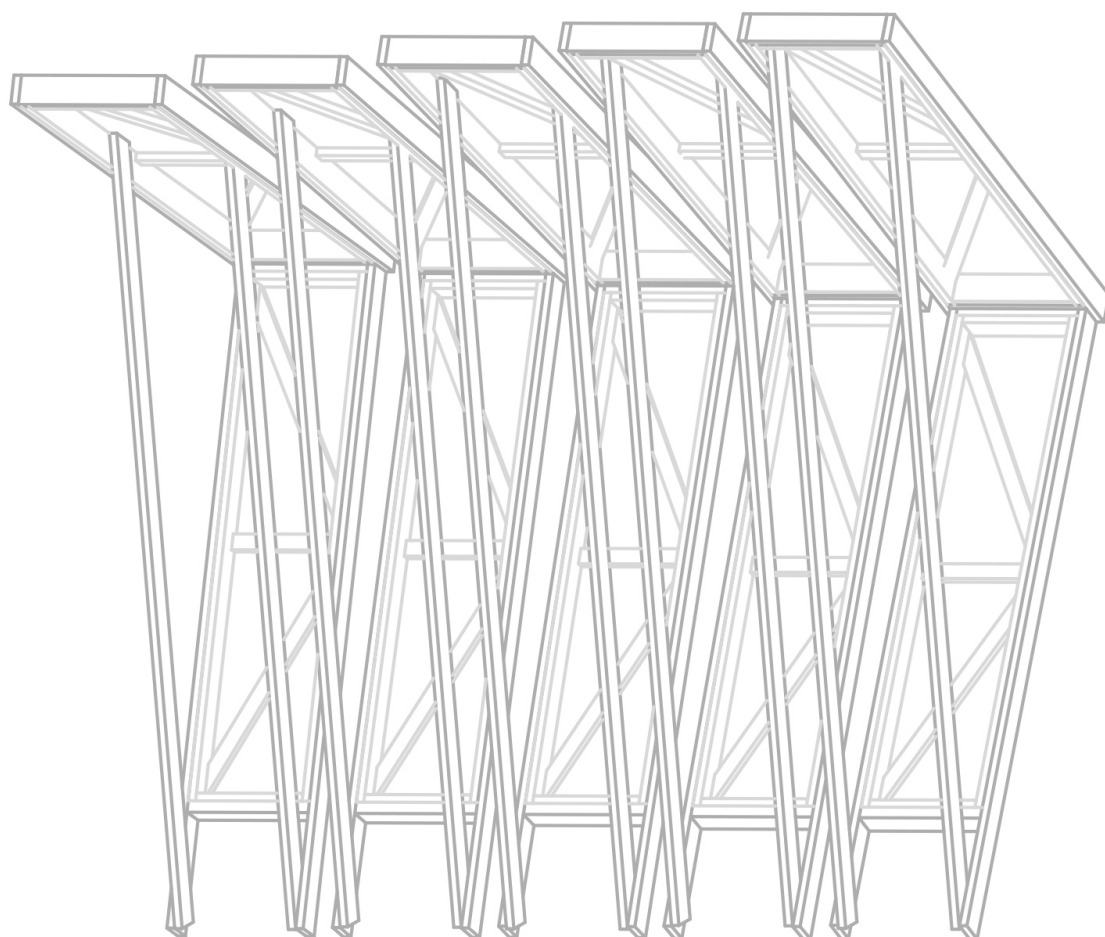
VIS:
 $160 \times 60 \text{ mm}$
 $20 \times 170 \text{ mm} \times 34 \text{ mm} \times 34 \text{ mm}$





7.

P A R O I S M O B I L E S



TEMPS DE MONTAGE : 2h (1h/élément)

PERSONNE NÉCESSAIRES : 5

GRANDES SECTIONS : 110 [m]

PETITES SECTIONS : 25 [m] (5 [m]/élément)

PIÈCES BOIS : -

VIS : 200x80 [mm], diam. 6 [mm], inox
300x60 [mm], diam. 3.5 [mm], acier

TIGE FILTÉE : 1 [m]

BOULONS : 40 pce, diam. 8 [mm]

RONDELLES : 20 pce, diam. 8 [mm]

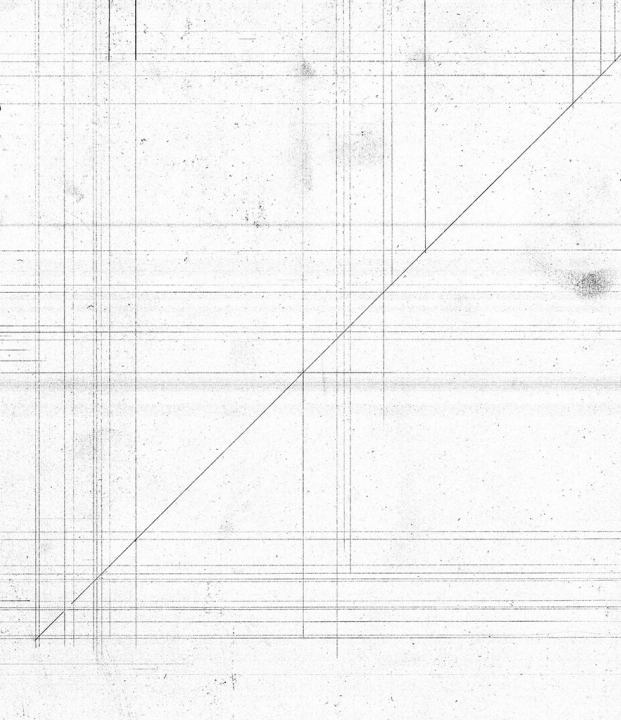
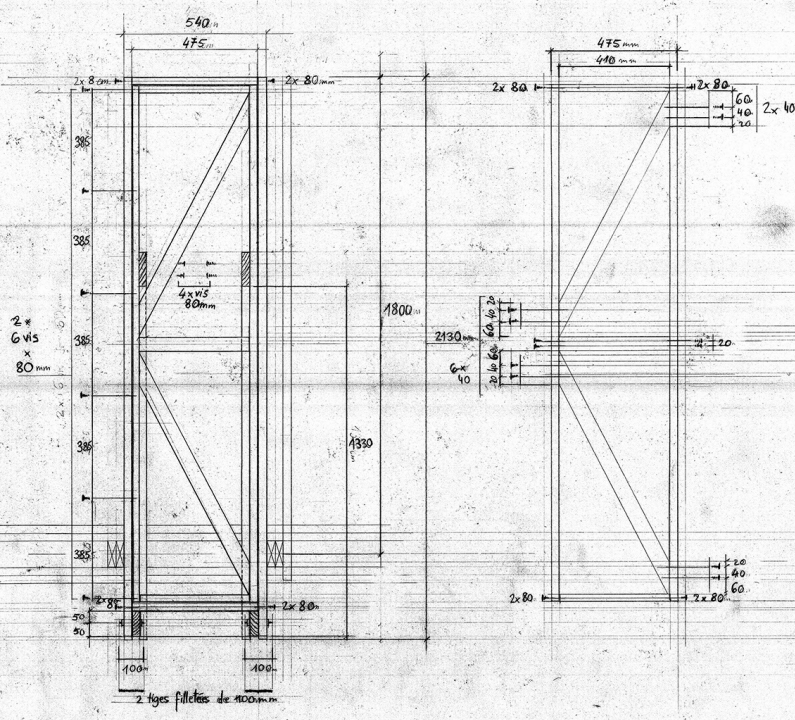
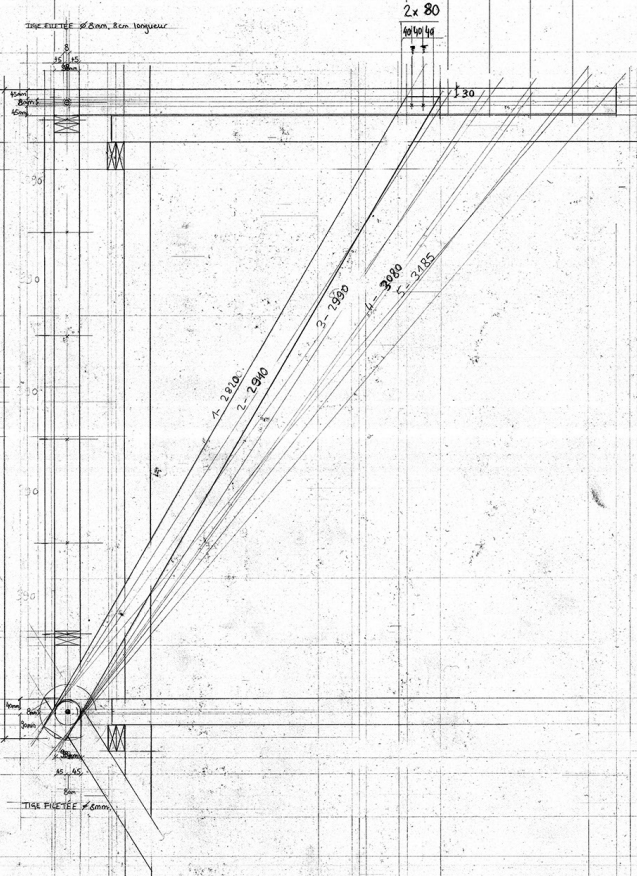
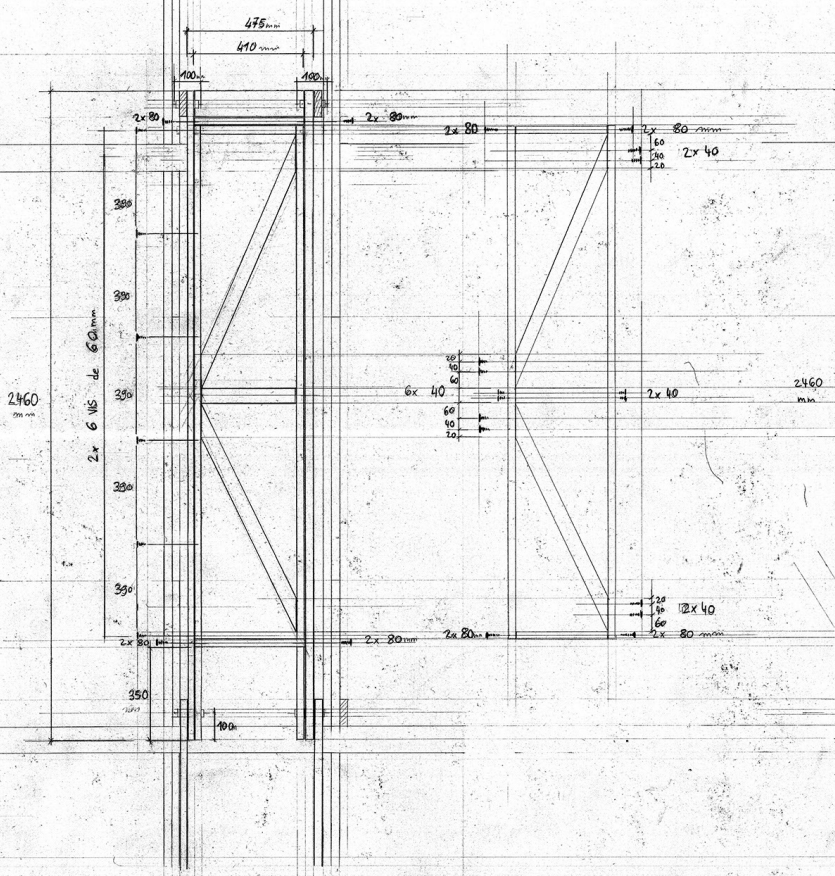
TUYAU ALUMINIUM : -

TISSU : 13 [m²]

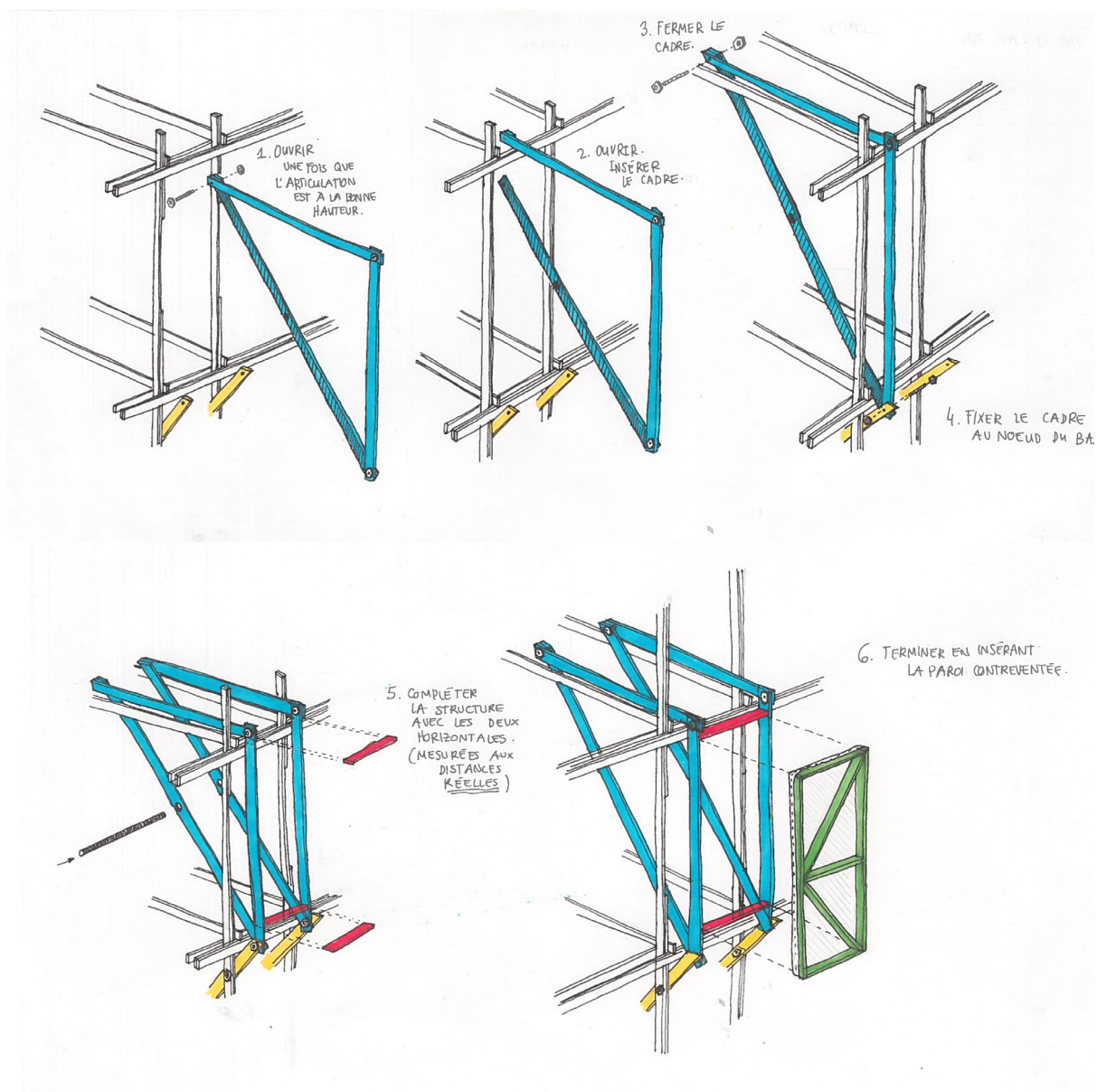
POIDS : 75 [kg] (15 [kg]/élément)

NOMBRE D'ÉLÉMENTS PRÉFABRIQUÉS : 5 éléments

- 5- 1955
- 4 - 1790
- 3 - 1640
- 2 - 1485
- 1 - 1330







8.

A R T I C U L A T I O N

TEMPS DE MONTAGE : 2h

PERSONNE NÉCESSAIRES : 2

GRANDES SECTIONS : -

PETITES SECTIONS : -

PIÈCES BOIS : -

VIS : -

TIGE FILTÉE : 1.30 [m], diam. 8 [mm]

BOULONS : 24 pce, diam. 8 [mm]

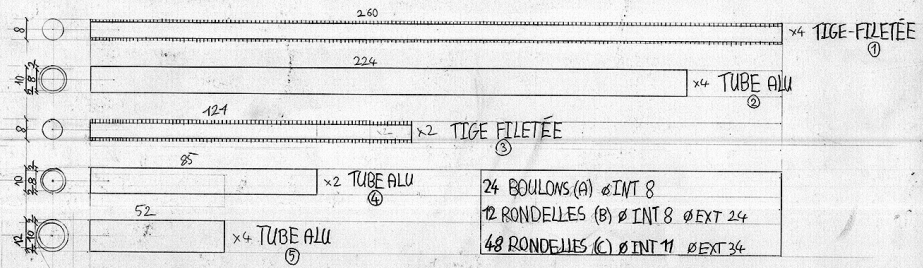
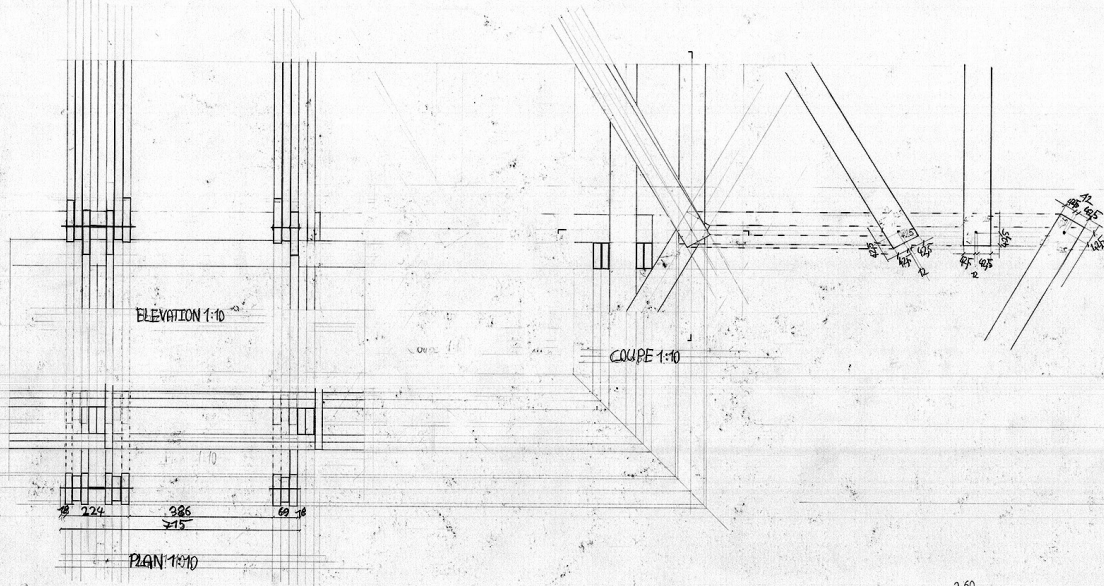
RONDELLES : 48 pce, diam. 10 [mm]
 12 pce, diam. 8 [mm]

TUYAU ALUMINIUM : 110 [cm], diam. 8 [mm]
épaisseur 1 [mm] 21 [cm], diam. 12 [mm]

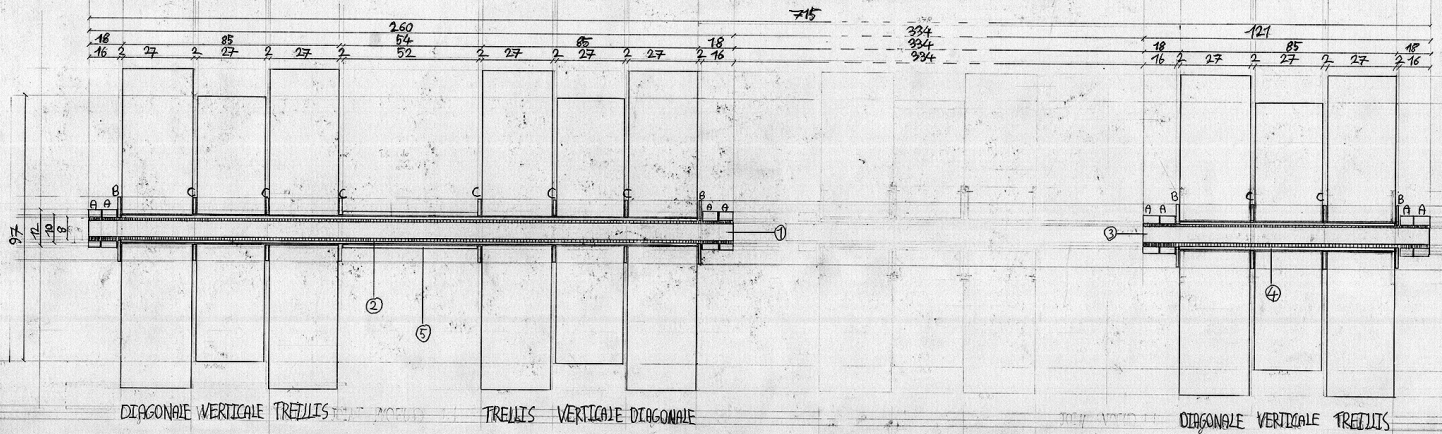
TISSU : -

POIDS : -

NOMBRE D'ÉLÉMENTS PRÉFABRIQUÉS : -

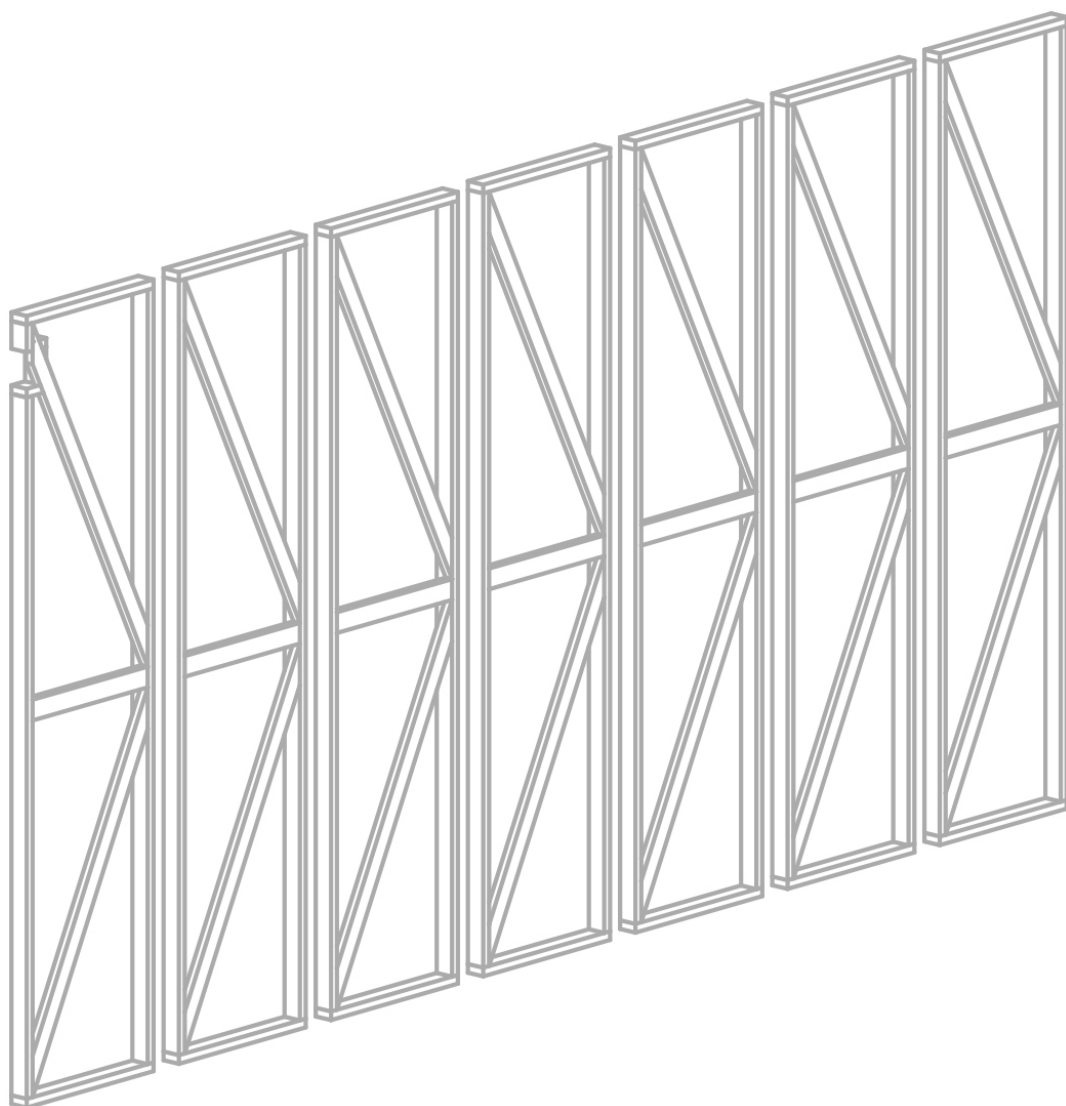


DETAIL NOEUD COUPÉ EN PLAN 1:1



9.

C O U L O I R



TEMPS DE MONTAGE : 3h30 (30 min/cadre)

PERSONNE NÉCESSAIRES : 3

GRANDES SECTIONS : -

PETITES SECTIONS : 57 [m]

PIÈCES BOIS : -

VIS : 6 pce 80 [mm], diam. 6 [mm], inox
124 pce 60 [mm], diam. 6 [mm], acier

TIGE FILTÉE : -

BOULONS : -

RONDELLES : -

TUYAU ALUMINIUM : -

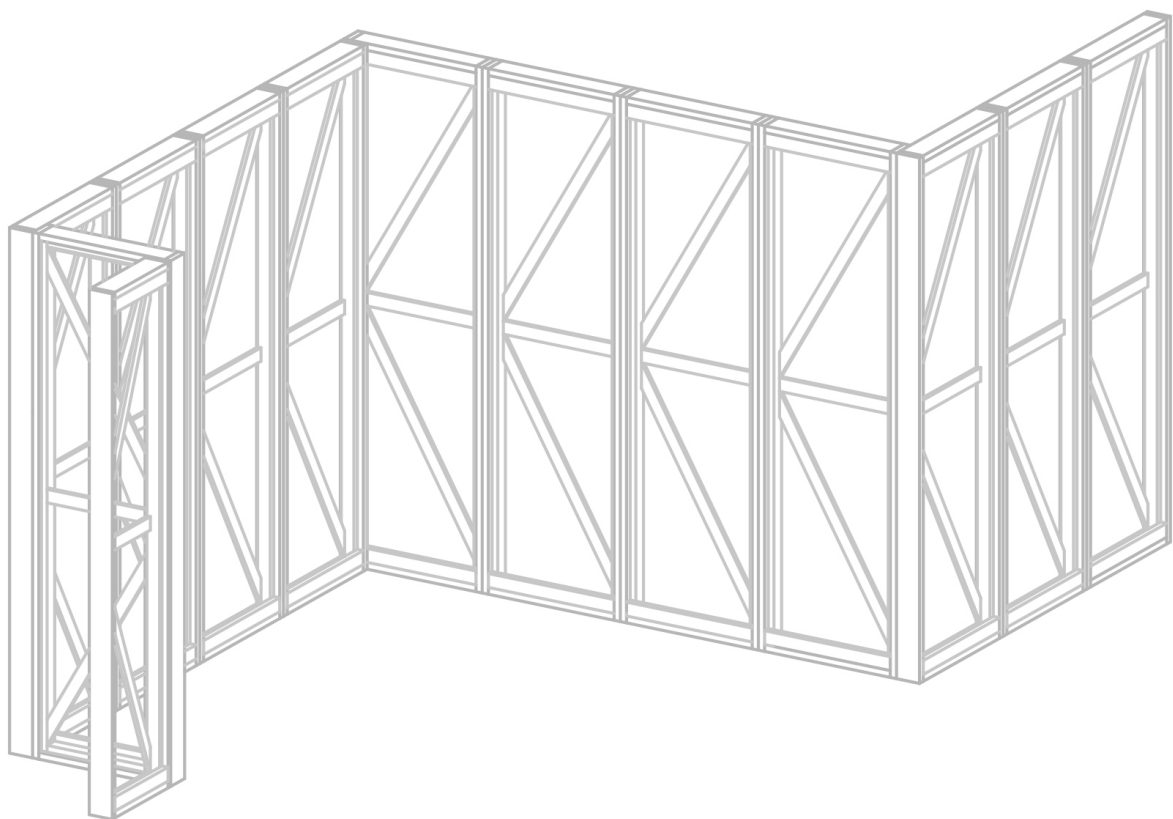
TISSU : 8 [m²]

POIDS : 32 [kg] (4.6 [kg]/cadre)

NOMBRE D'ÉLÉMENTS PRÉFABRIQUÉS : 7 éléments

10.

P A R O I S S U D



TEMPS DE MONTAGE : 4h (30 min/cadre)

PERSONNE NÉCESSAIRES : 6

GRANDES SECTIONS : 108 [m] (8.25 [m]/cadre)

PETITES SECTIONS : 90 [m] (6.8 [m]/cadre)

PIÈCES BOIS : -

VIS : 520 pce 60 [mm], diam. 6 [mm], acier
 78 pce 80 [mm], diam. 6 [mm], inox

TIGE FILTÉE : -

BOULONS : -

RONDELLES : -

TUYAU ALUMINIUM : -

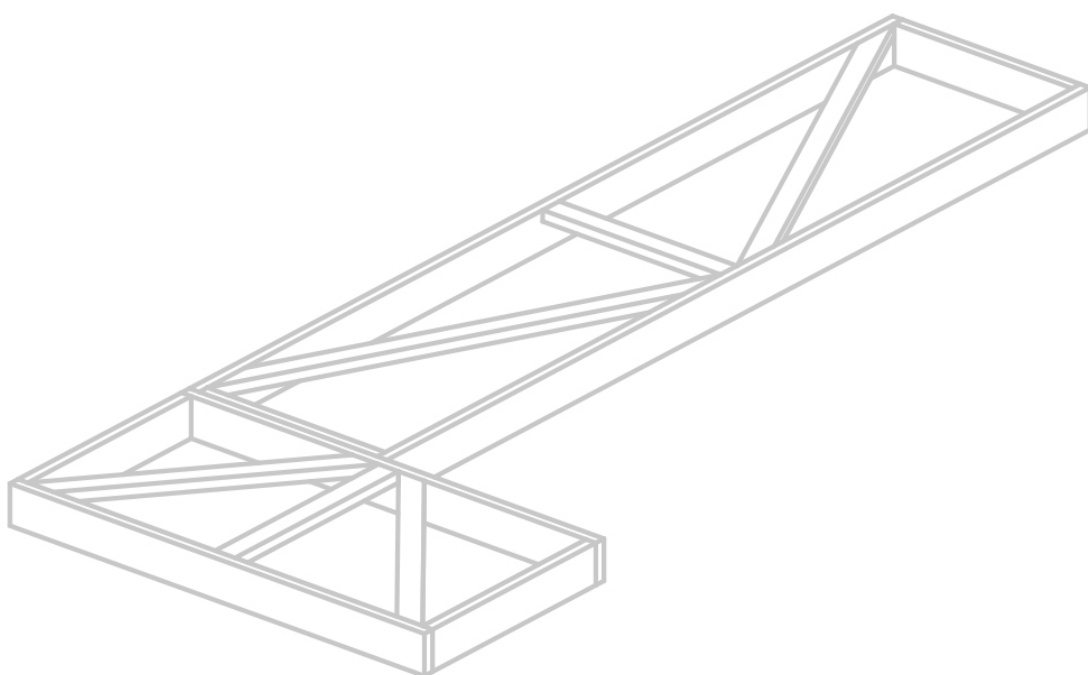
TISSU : 17[m²]

POIDS : 14 [kg] (1.5 [kg]/cadre)

NOMBRE D'ÉLÉMENTS PRÉFABRIQUÉS : 13 éléments

11.

P L A F O N D



TEMPS DE MONTAGE : 1h30 (30 min/cadre)

PERSONNE NÉCESSAIRES : 3

GRANDES SECTIONS : 9.1 [m]

PETITES SECTIONS : 5 [m]

PIÈCES BOIS : -

VIS : 35 pce 60 [mm], diam. 6 [mm], acier
 7 pce 150 [mm], diam. 6 [mm], inox

TIGE FILTÉE : -

BOULONS : -

RONDELLES : -

TUYAU ALUMINIUM : -

TISSU : 2.15 [m²]

POIDS : 13.45 [kg]

NOMBRE D'ÉLÉMENTS PRÉFABRIQUÉS : 2 éléments

ELEVATION 1/20

PLAN 1/20

#2 #1

ELEVATION 1/10 CADRE 1

ELEVATION 1/10 CADRE 2

DETAIL #1 COUPE 1/10

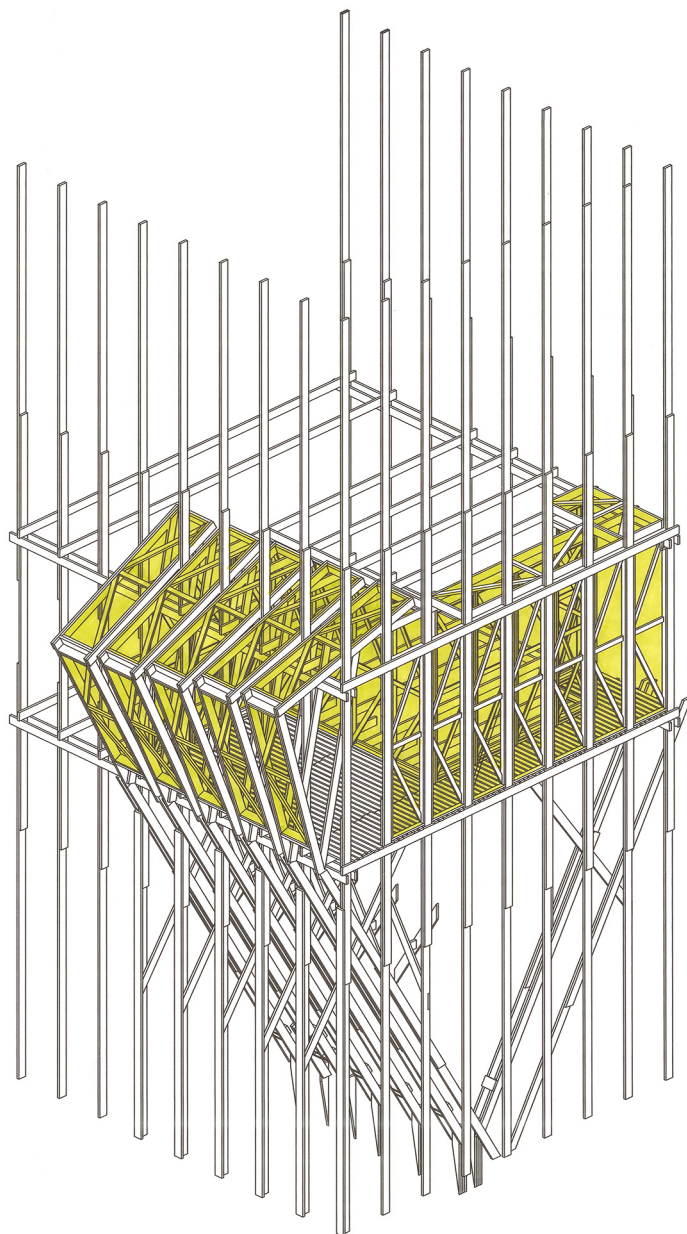
DETAIL #2 COUPE 1/10

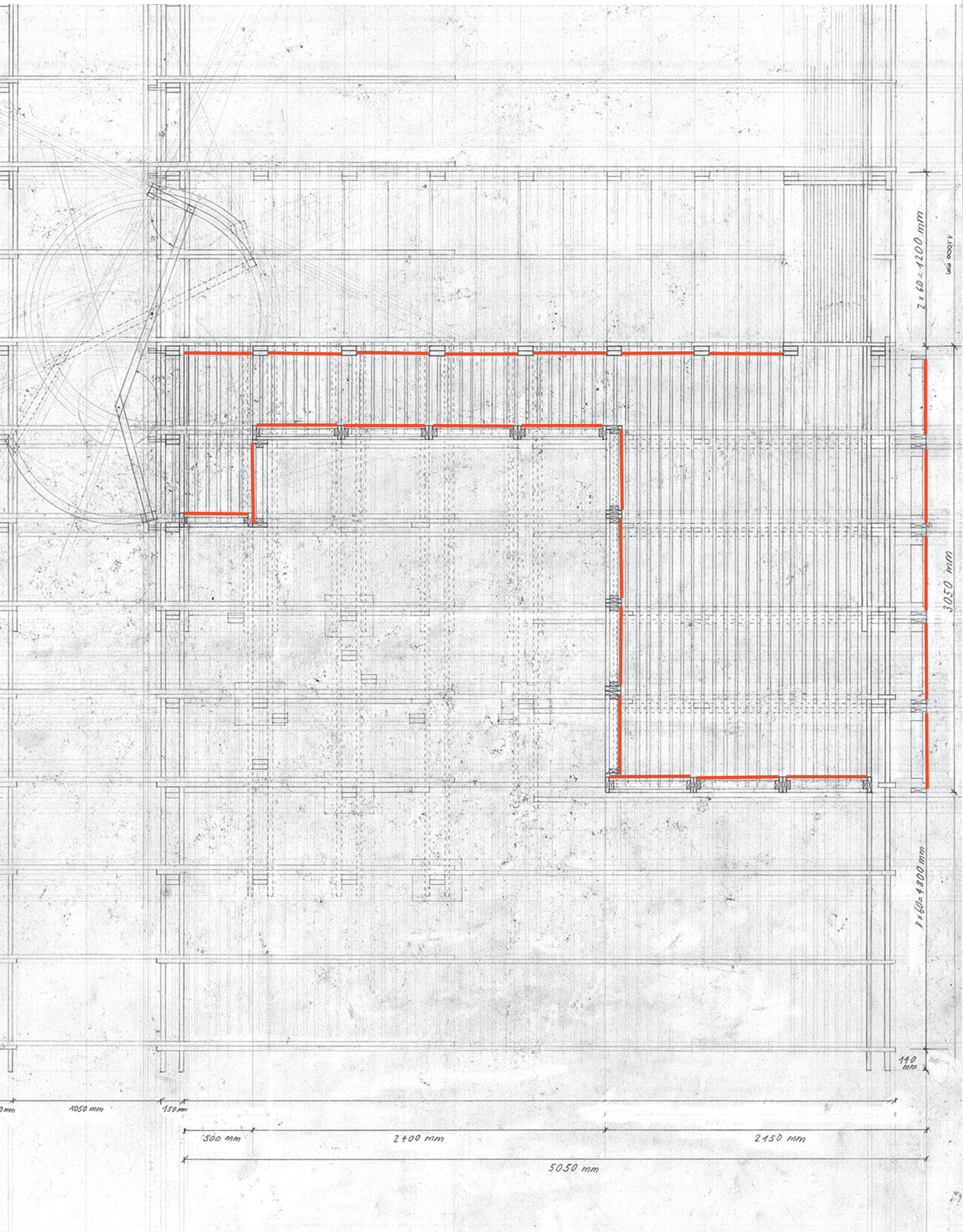
TOIT
2 CADRES PREFABRIQUES
VIS: $\varnothing 0,45 \text{ cm} \times 6 \text{ cm}$ 16 / CADRE (ATER ZINGUE RICHON)
BOIS: $2,3 \times 5,4 \text{ cm}$: 4932 mm $2,7 \times 9,7 \text{ mm}$: 9064
TISUS: 2 CADRE: $1,35 \text{ m}^2$ == TOT: $2,70 \text{ m}^2$
POIDS: 13,43 kg
MONTAGE: 3 PERSONNES 1430

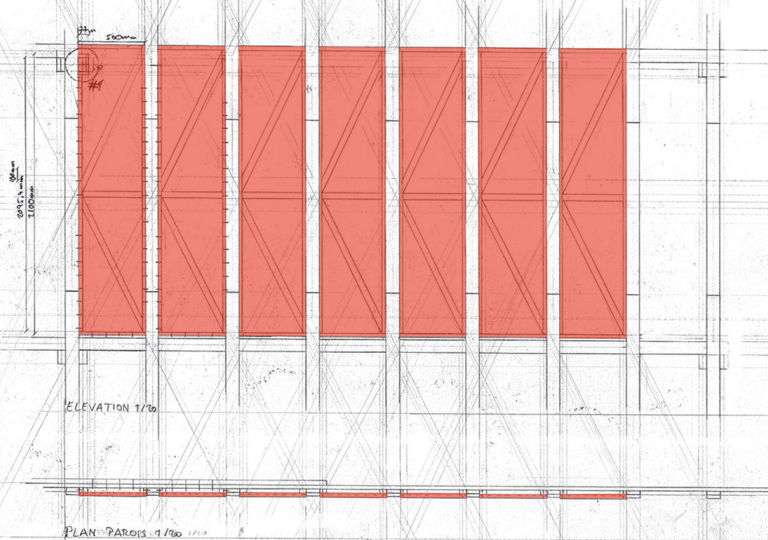
MANDY BURNIER ET SEBASTIEN LENDI
AUDE HACKER ET MARCO LUCAS

12.

T I S S U

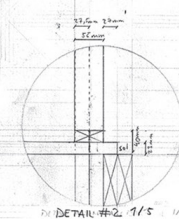
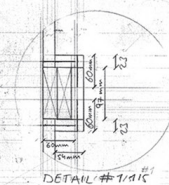




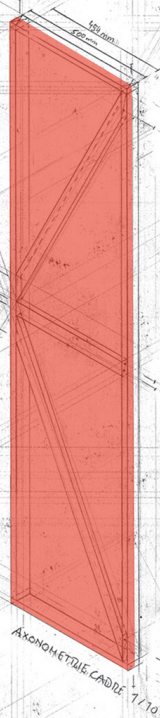


#2

COUPE 1/20



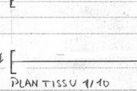
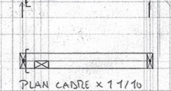
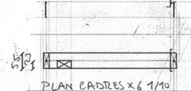
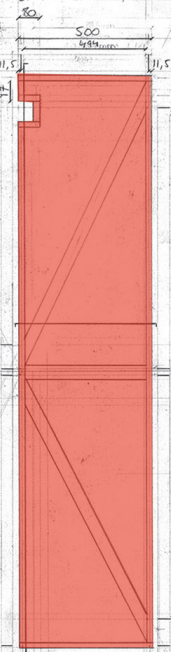
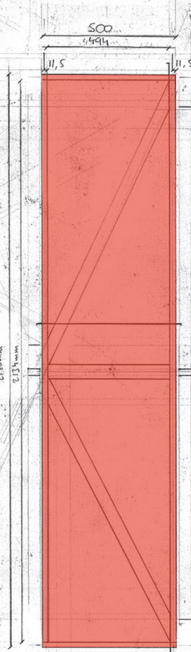
AXO MONTAGE DANS STRUCTURE 1/10



ELEVATION CADRES x 6 1/10

ELEVATION CADRE x 1 1/10

ELEVATION TISSU 1/10

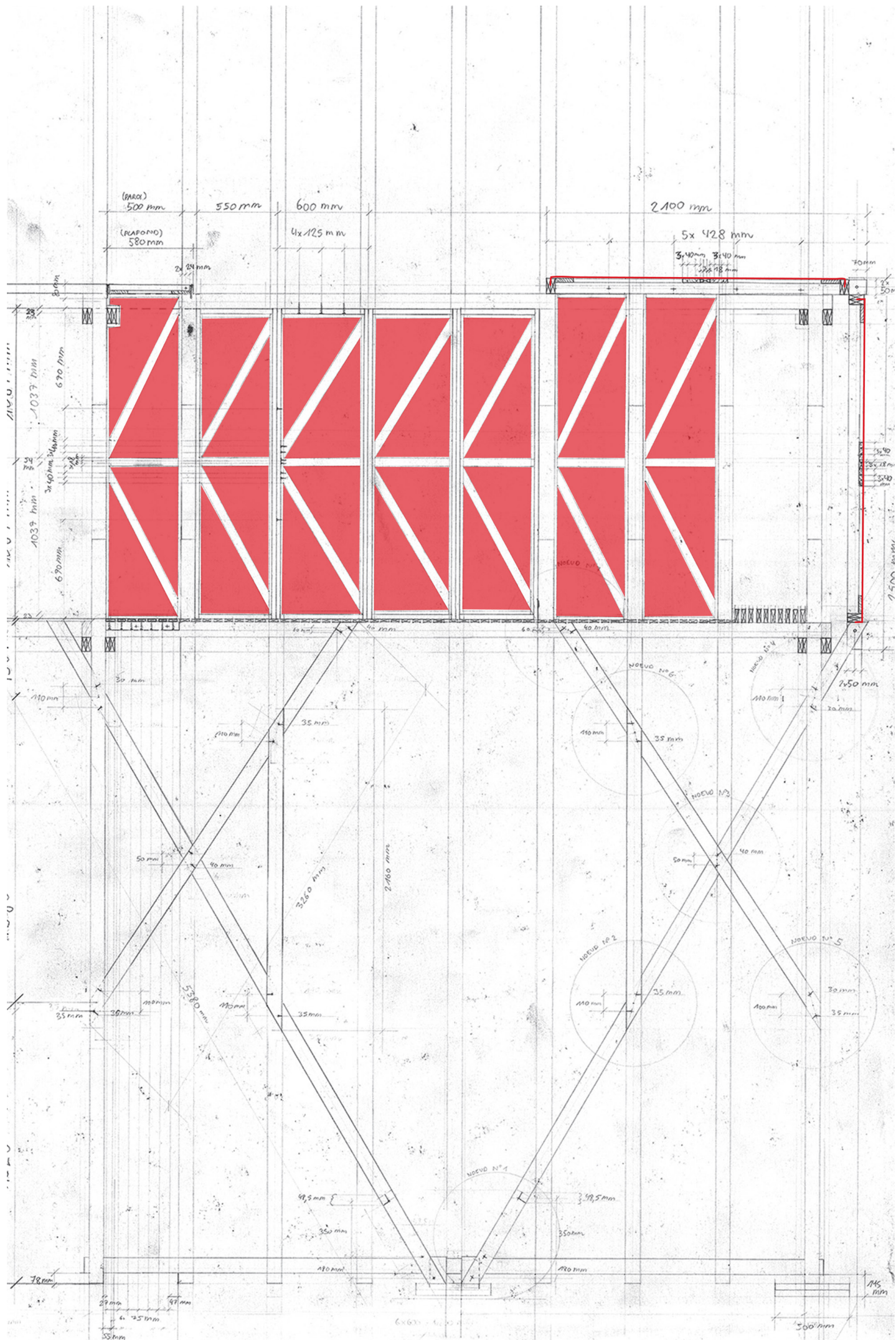


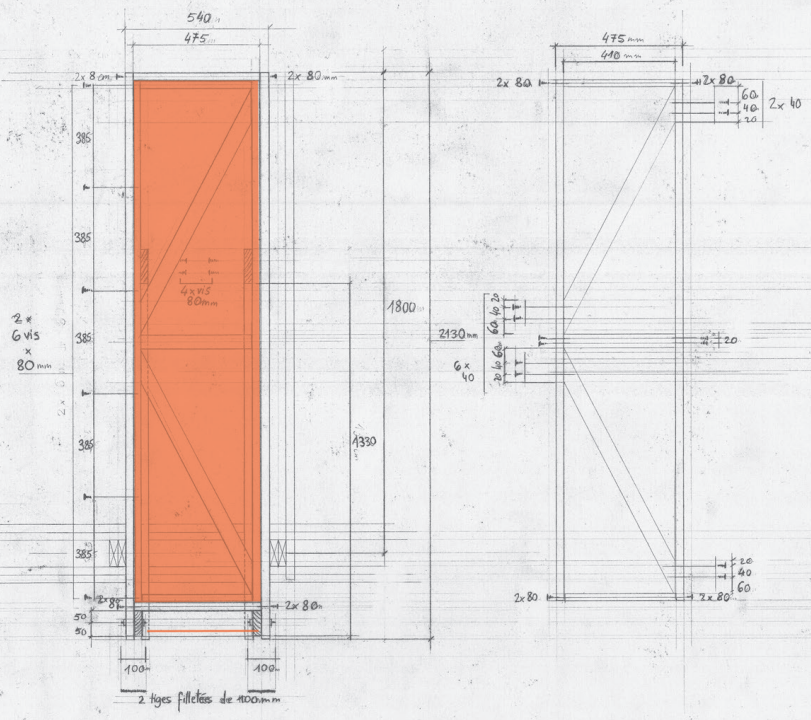
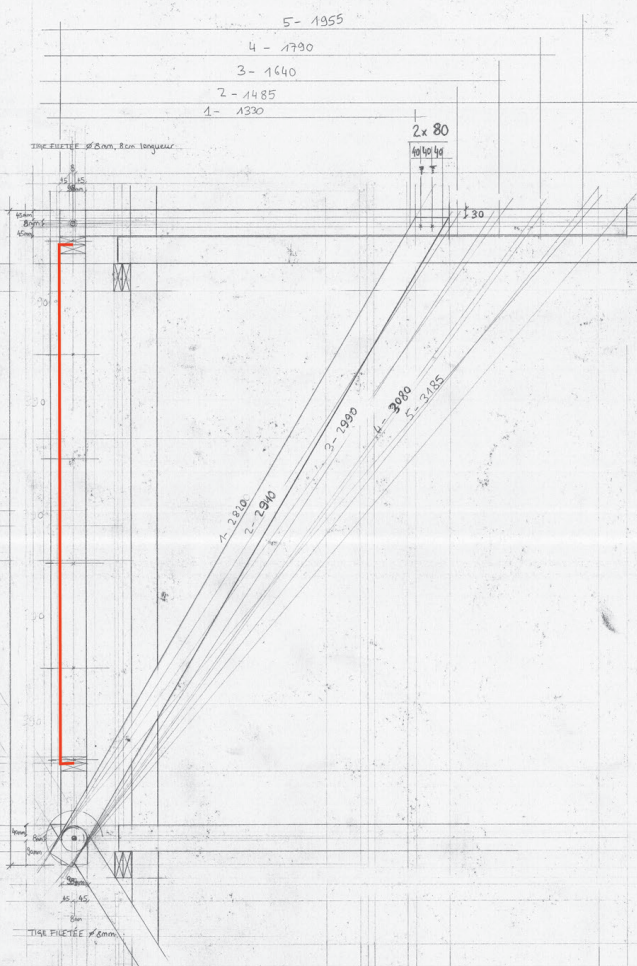
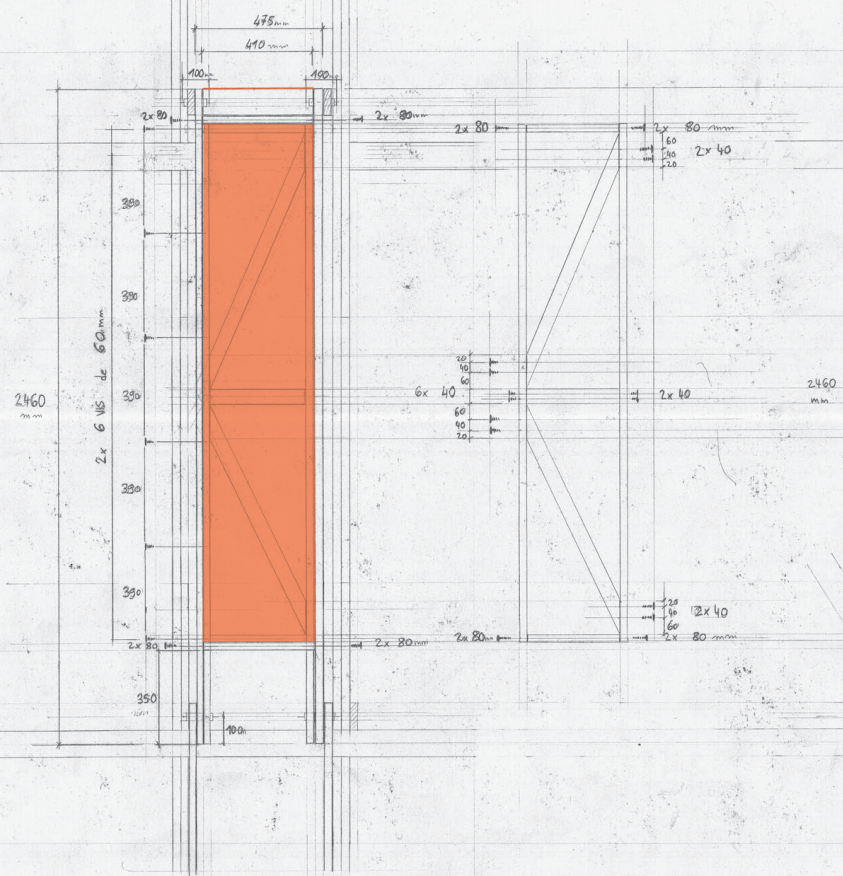
7 CADRES PREFABRIQUES
VIS: Ø 0,045 cm x 6 cm 12 / CADRE + 4 = TOT: 8
BOIS: 60x2 mm / CADRE == TOT: 4230, 3 mm
TISSUS: 1,1 m² / CADRE == TOT: 7,7 m²
POIDS: 3,5 kg / CADRE == TOT: 24,5 kg
MONTAGE: 3 PERSONNES 2H30

VIS EN ACIER ZINGUE BICHROMITE

COUPE TISSU 1/10

HANDY BURNIER ET SEBASTIEN LENDI



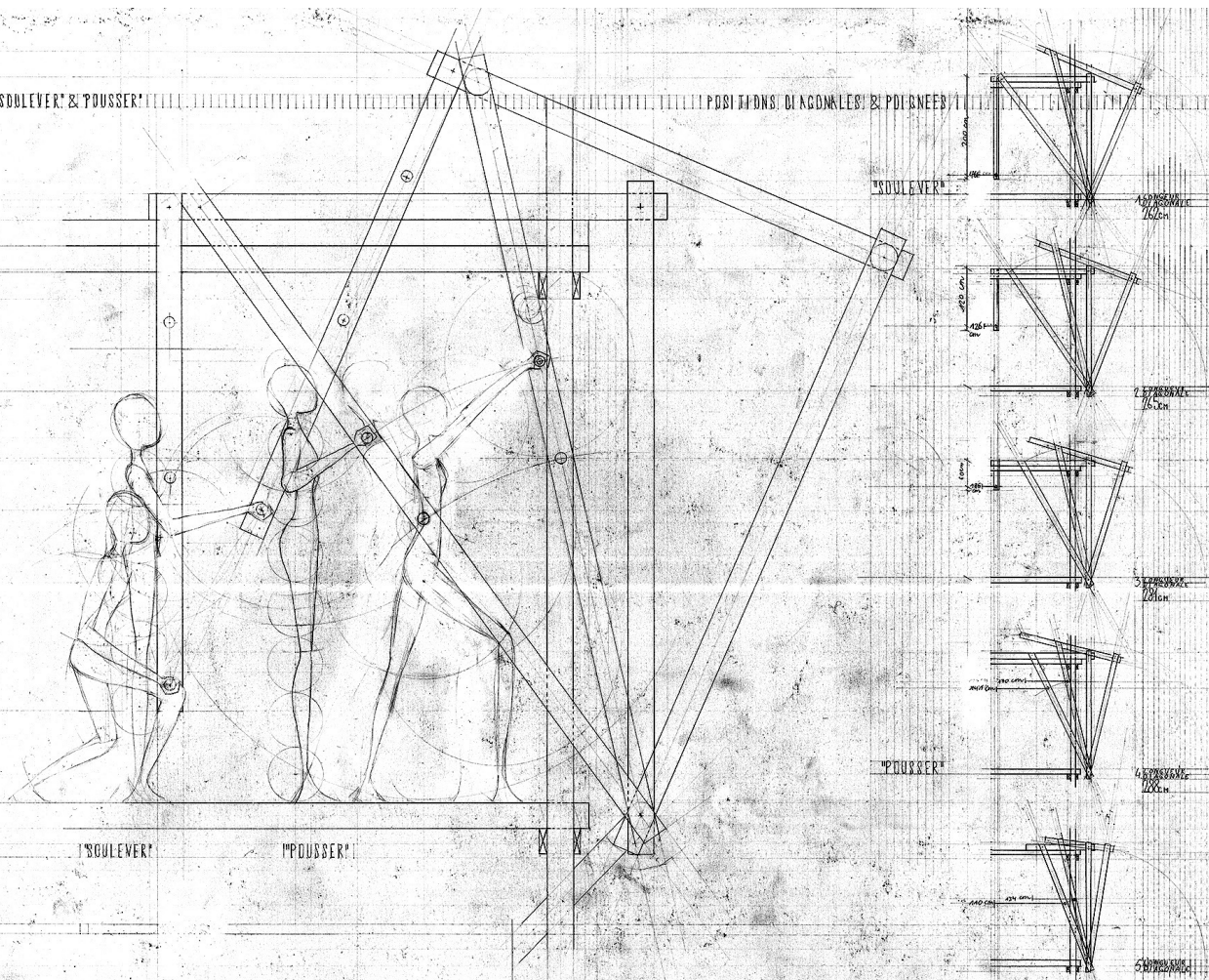


13.

M O U V E M E N T

2. MOUVEMENTS: "SOULEVER" & "POUSSER"

POSITIONS DIAGONALES & POSITIONNEMENT



MECANISME "SOULEVER" COUPE PROFIL

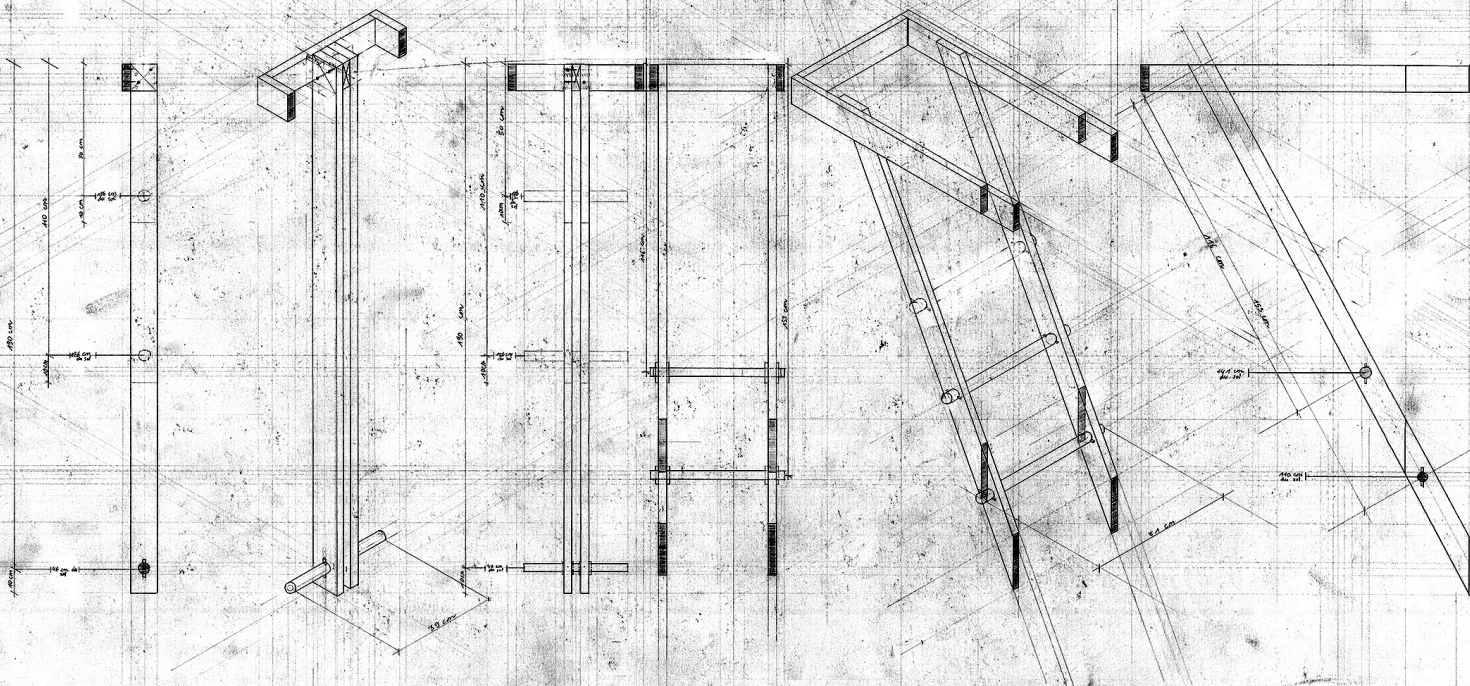
AXONOMETRIE

COUPE FACE

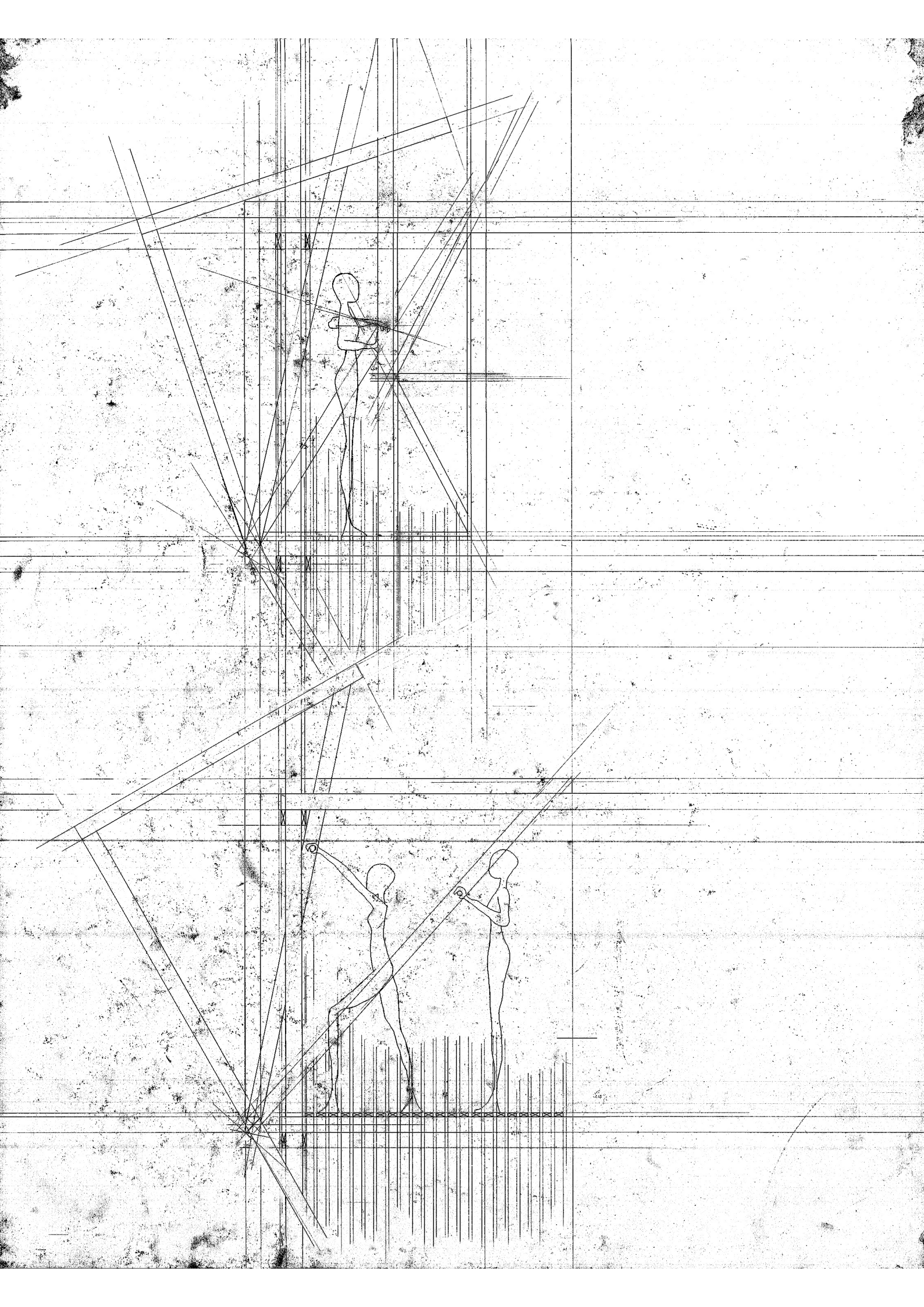
MECANISME "POUSSER" COUPE FACE

AXONOMETRIE

COUPE PROFIL

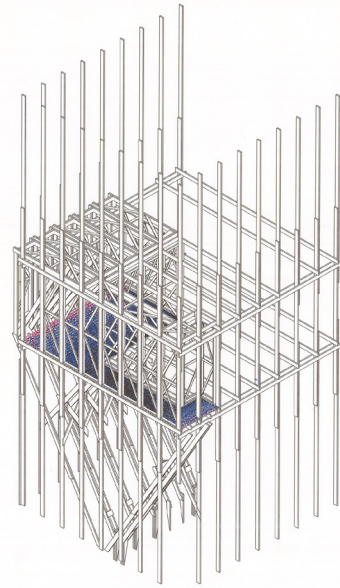


DOCKNEBELUNG
RUSSEBAU





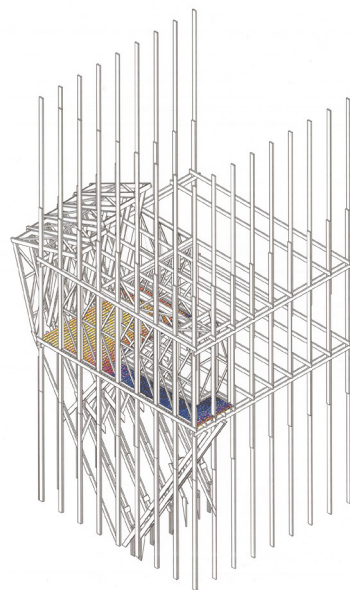
LUMIERE I
"LA MACHINE"



Studio Ryfer
HOUSE 1 / 2016

Alba Gmenezger et Stéphane Delguy

LUMIERE II
"LA MACHINE"

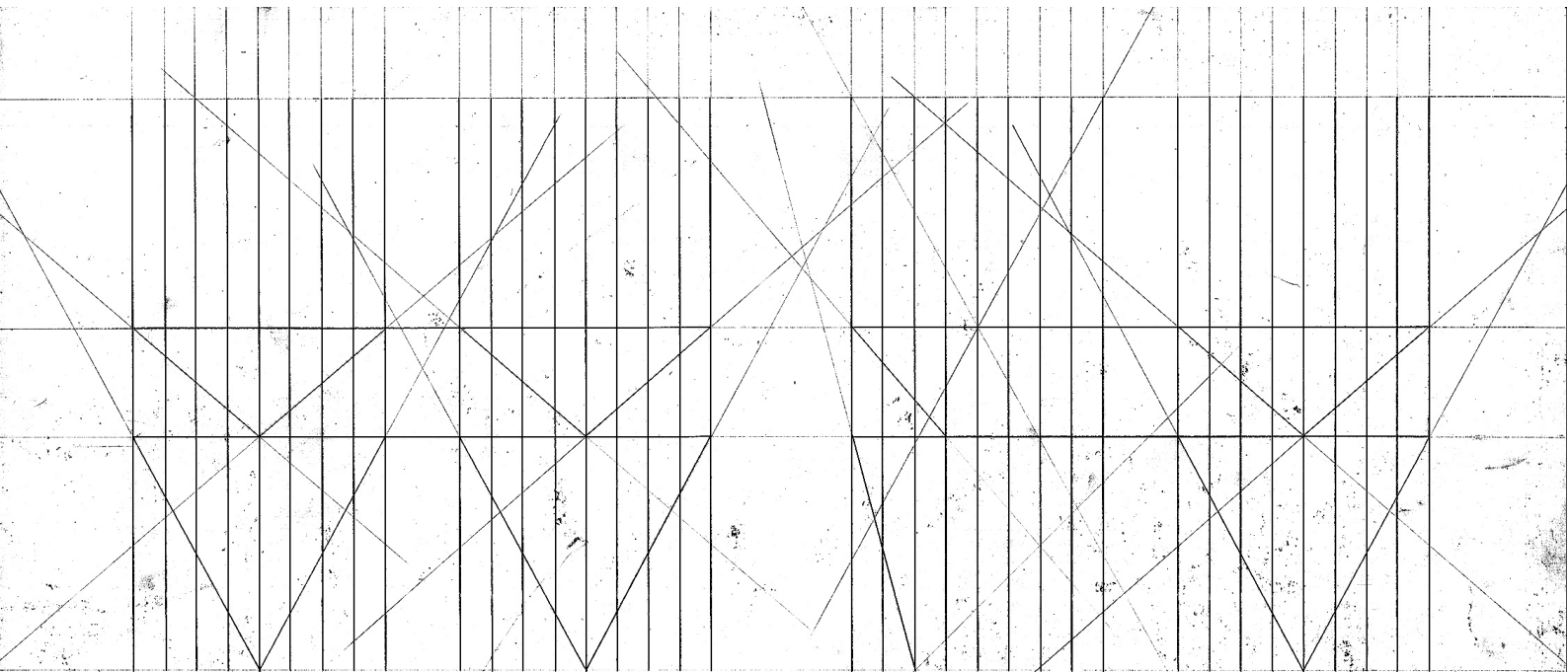


Studio Ryfer
HOUSE I / 2016

Alba Gmenezger et Stéphane Delguy

14.

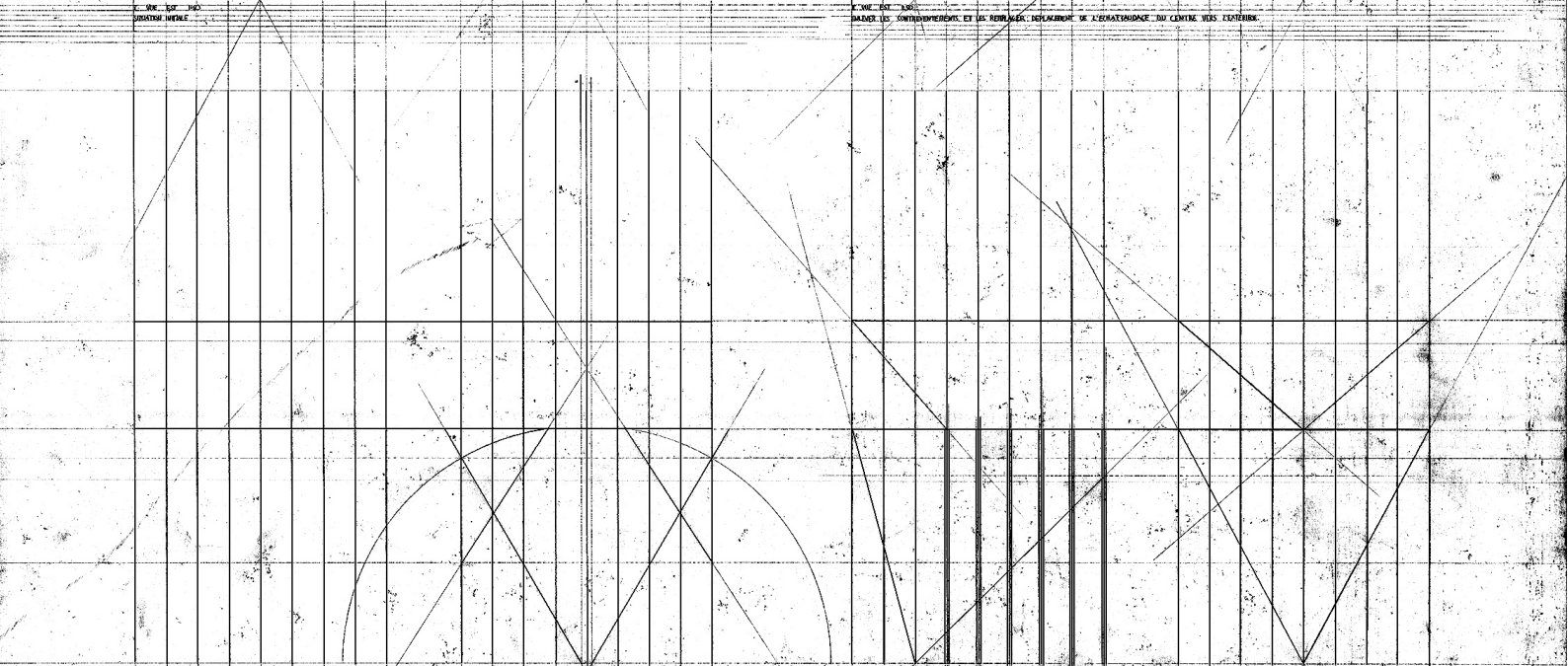
S É Q U E N C E M O N T A G E



PLAN 1000

PLAN 1000

PROJET DE CONSTRUCTION ET DE RECONSTRUCTION DE L'EDIFICATION DU CENTRE VERS L'ESTER

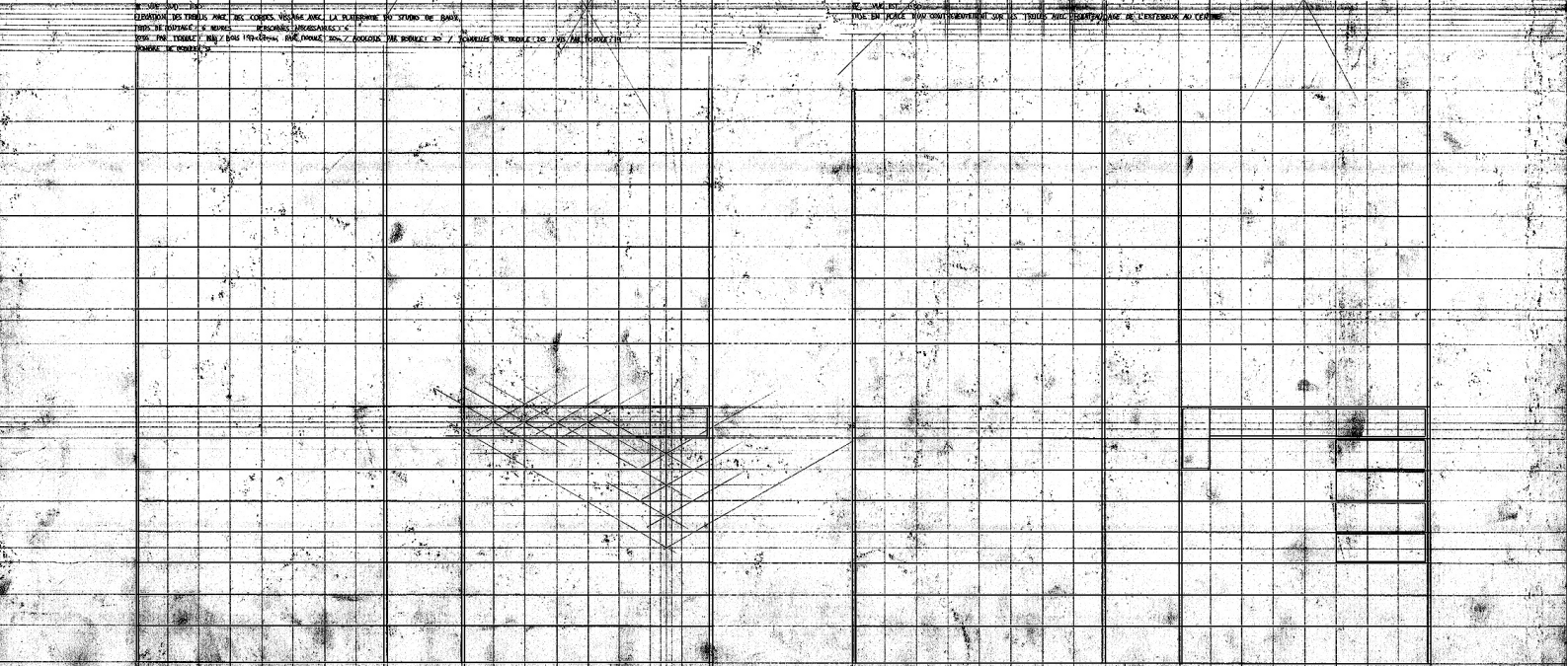


PLAN 1000

PLAN 1000

PROJET DE CONSTRUCTION ET DE RECONSTRUCTION DE L'EDIFICATION DU CENTRE VERS L'ESTER

PROJET DE CONSTRUCTION ET DE RECONSTRUCTION DE L'EDIFICATION DU CENTRE VERS L'ESTER

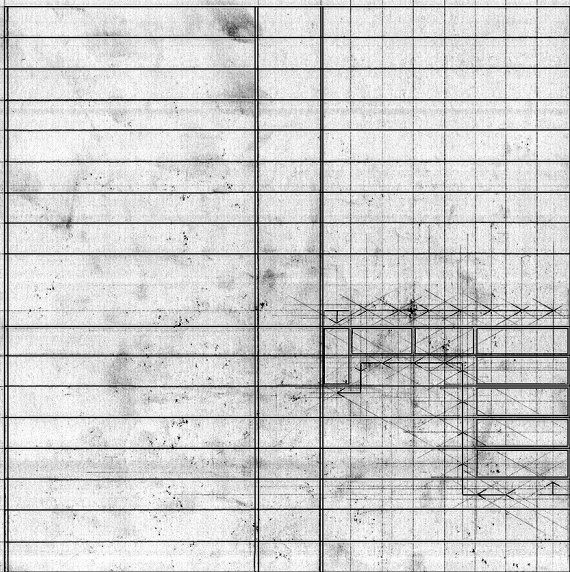


PLAN 1000

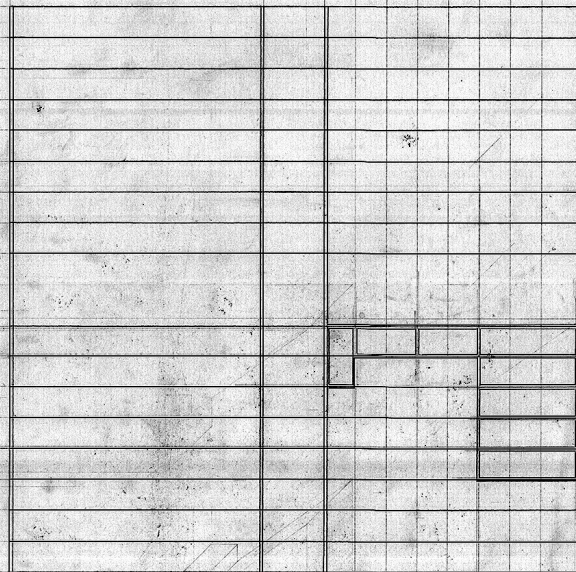
PLAN 1000

PROJET DE CONSTRUCTION ET DE RECONSTRUCTION DE L'EDIFICATION DU CENTRE VERS L'ESTER

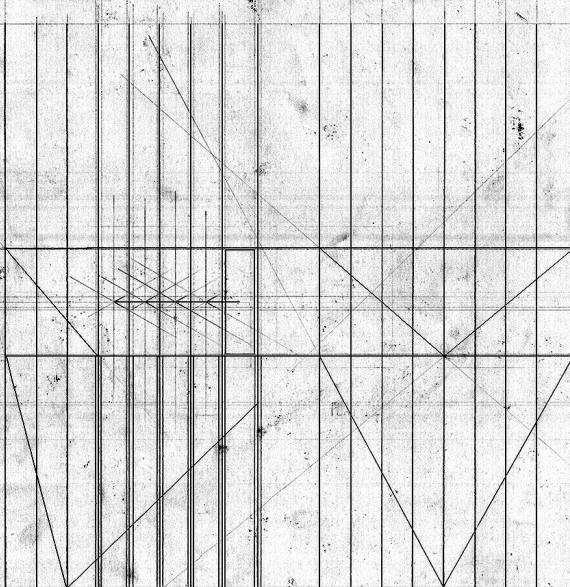
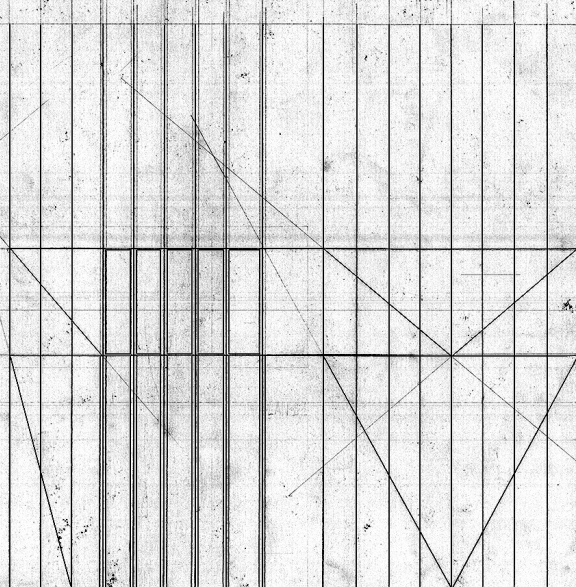
PROJET DE CONSTRUCTION ET DE RECONSTRUCTION DE L'EDIFICATION DU CENTRE VERS L'ESTER



IV. PLAN ISO
VUE DES ANNEXES FIXES A LA PHOTO-STRUCTURE A PARTIR DU SOL
TITRES DE MONTAGE : 6 HEURES PERSONNES NECESSAIRES : 8



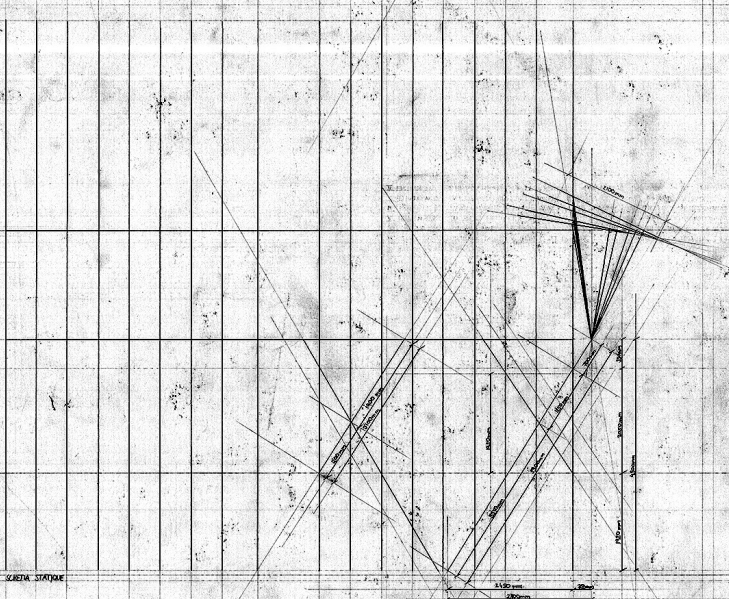
VIII. PLAN 1:50

[illegible]

~~IN VUE EST H.SONG~~

SITUATION FINALE

TOTAL POIDS: 260 kg / BOIS 9x12cm: 57m / BOIS 8x12cm: 58m / BOULEVARD: 225 / ROUILLES: 155 / VIS Ø6 40mm: 195 / VIS Ø6 30mm: 142 / TIGES: TIGETTES: 13,5m



SCHEMA STATIQUE

~~HACKED~~

15.

C H A N T I E R



Préparation de la
logistique avant
l'intervention
du studio sur le
chantier HOUSE 1

Préfabrication
et stockage
des modules







Construction







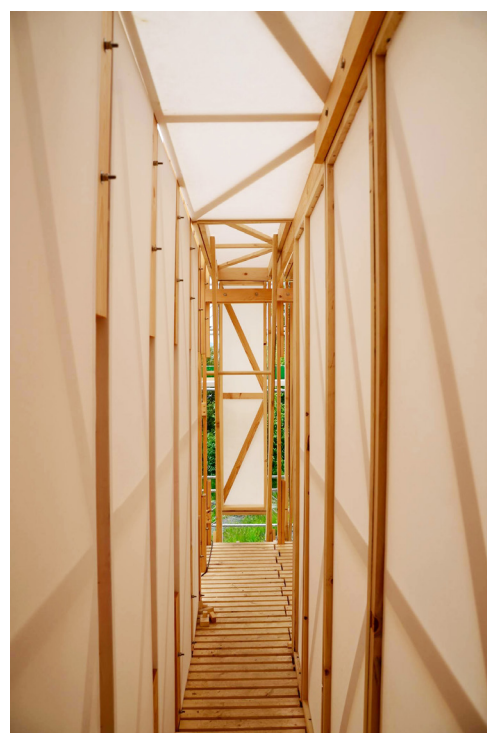












Le couloir



La pièce



Le mécanisme









S T U D I O R U F E R

RUFER ANNE-CHANTAL

ABDALLA GIOVANNI
BALET LUCAS

BEN AMOR AYOUB
BURNIER MANDY

DECURTINS FRANÇOIS
DELIYSKI STÉPHANIE

EMMENEGGER ALBA
GOLAY TÉO

HACKER AUDE
LENDI SÉBASTIEN

LUCAS MARCO
MEYLAN BENOÎT

NUSSBAUM JOANNE
RIAND ABIGAIL

SCHWAB LOÏC
ULRICH SARAH

WAHIDA ZIAD
WEBER SÉBASTIEN